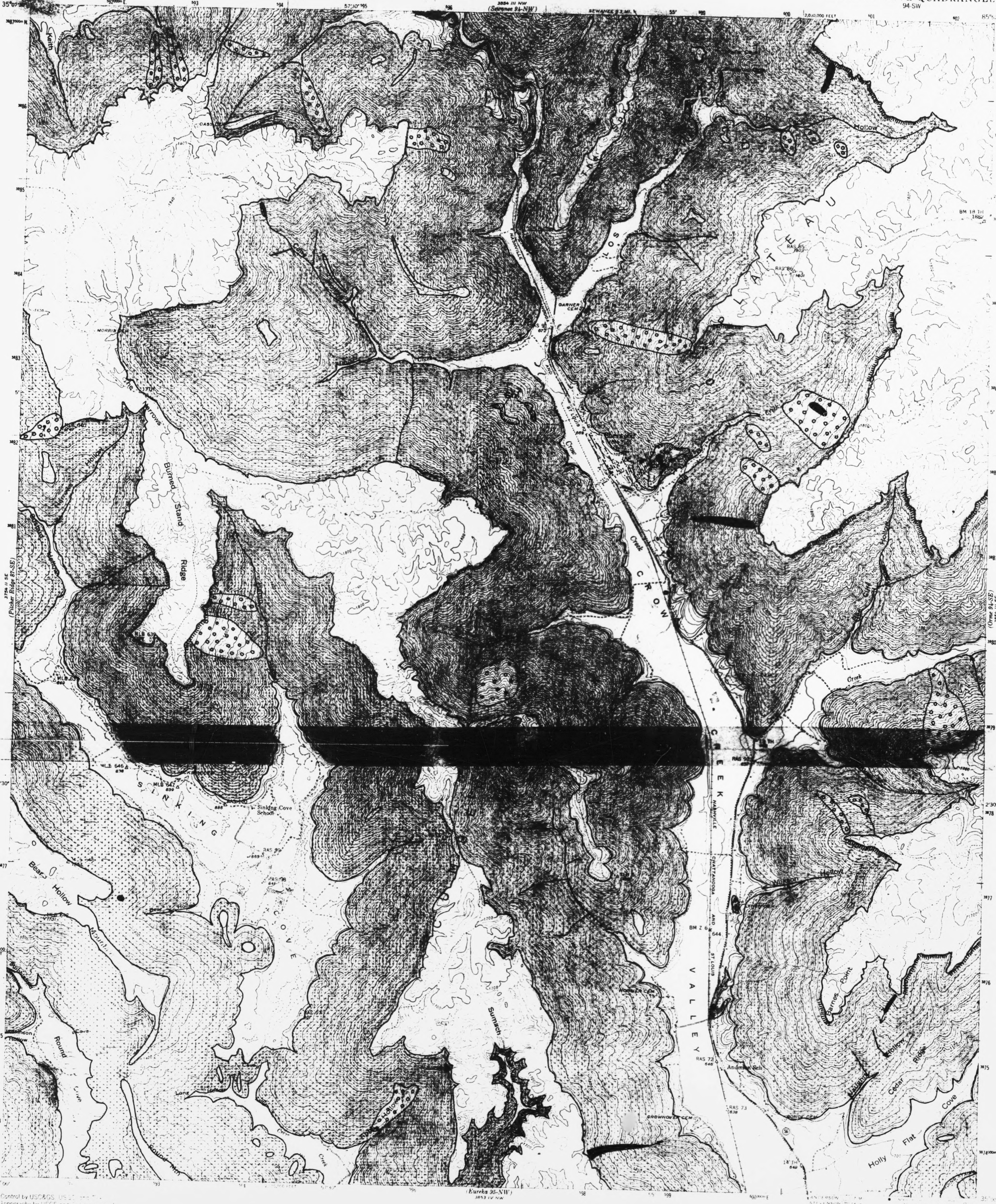
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

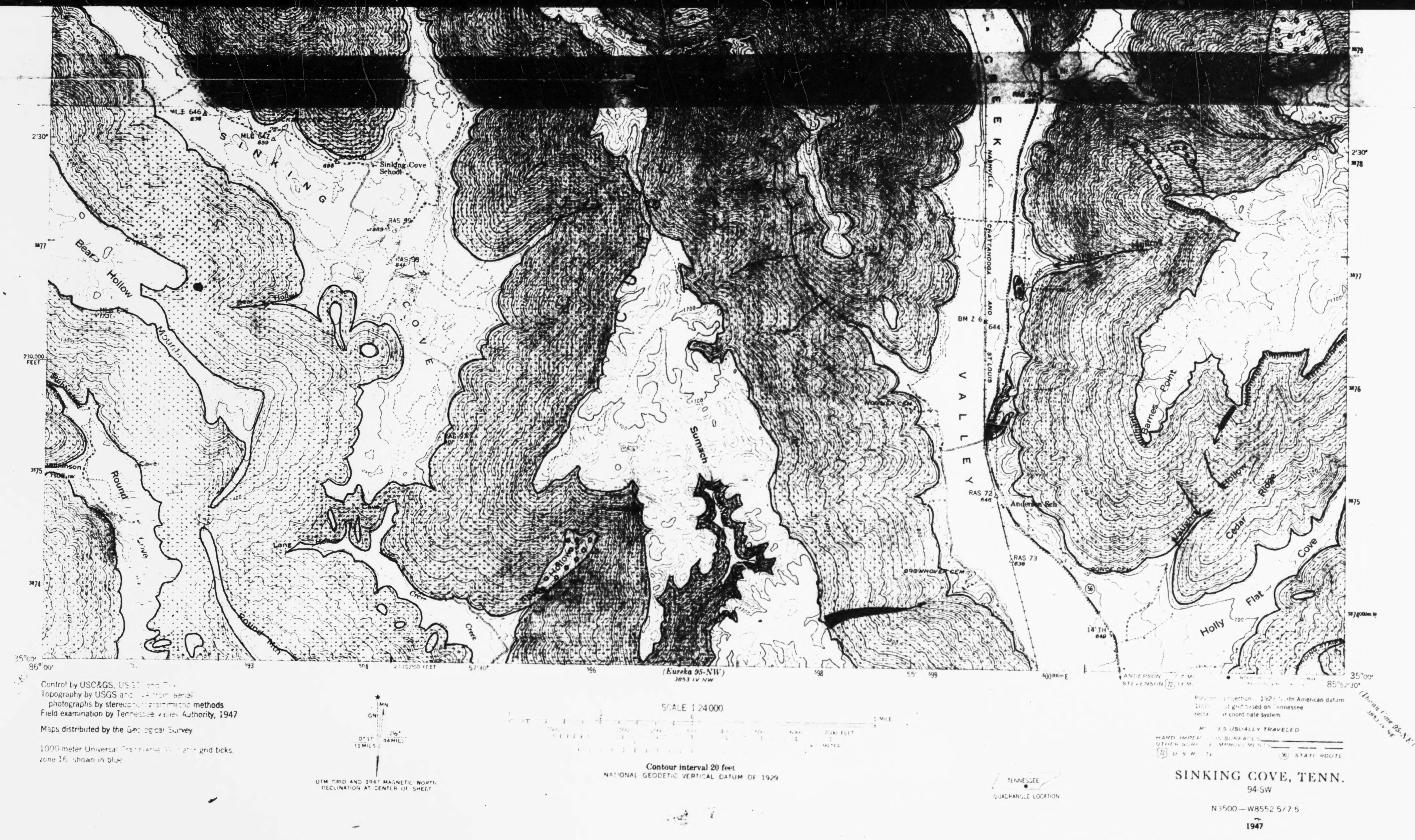
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

TENNESSEE
(FRANKLIN COUNTY)
SINKING COVE QUADRANGLE
94-SW



Control by USC&GS
Topography by USGS
photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1947

SCALE 1:24000



... features interpreted ... black ... white 1974 ... white 1976

... and field check 1981 ... preliminary and has not ... conformity with U.S. ... Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE SINKING COVE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (A-1)

...TIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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ss	hilltop removed
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Coal refuse banks

r	identified on aerial photographs; not classified in field check
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g	site of gravel pit

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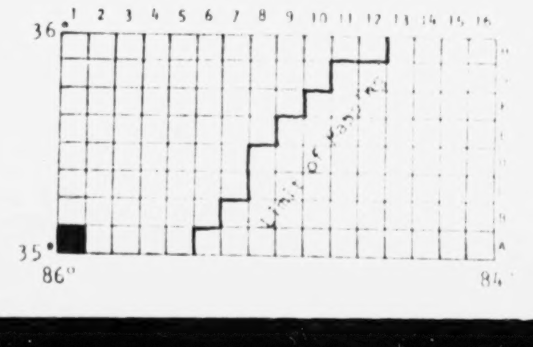
CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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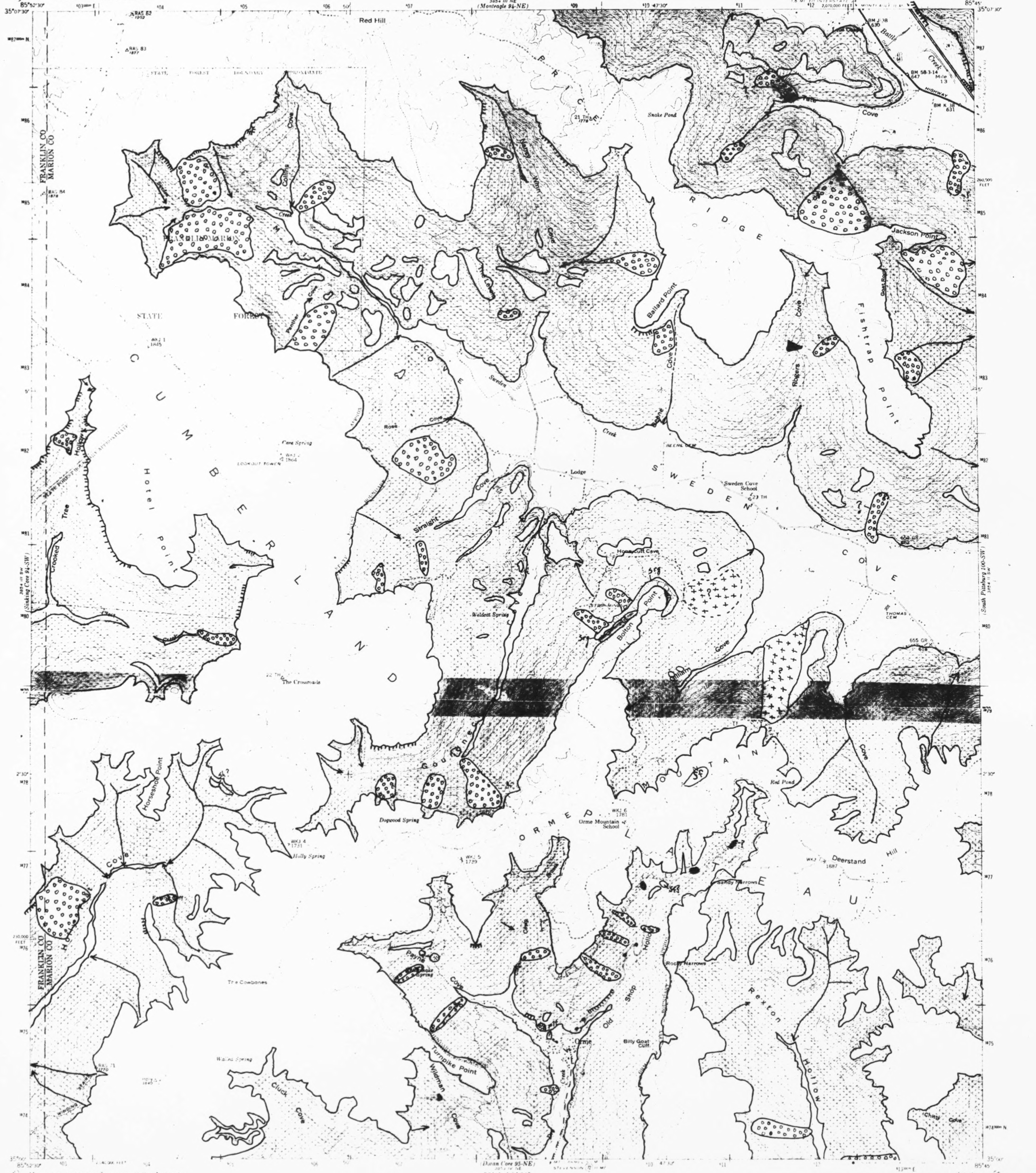
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

ORME QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 94-SE



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET

Polyconic projection. 1927 North American datum

ROAD CLASSIFICATION

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Topography by USGS and TVA by photogrammetric methods.
Map field checked by TVA, 1947

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000 metre Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ORME, TENN.
N3500—W8545/7.5
1947
PHOTOREVISED 1974

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1974
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981

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LANDSLIDES AND RELATED FEATURES

OF THE ORME, TENN. QUADRANGLE

by
Roger E. Thomas
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U.S. Geological Survey
OPEN FILE MAP 81-1318 (A-2)

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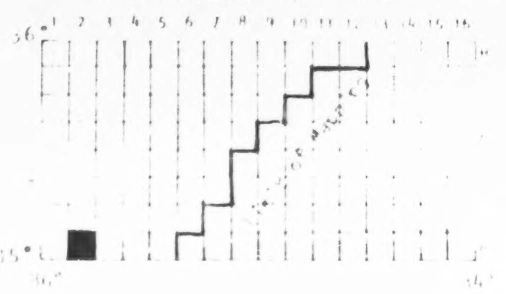

UNITED STATES
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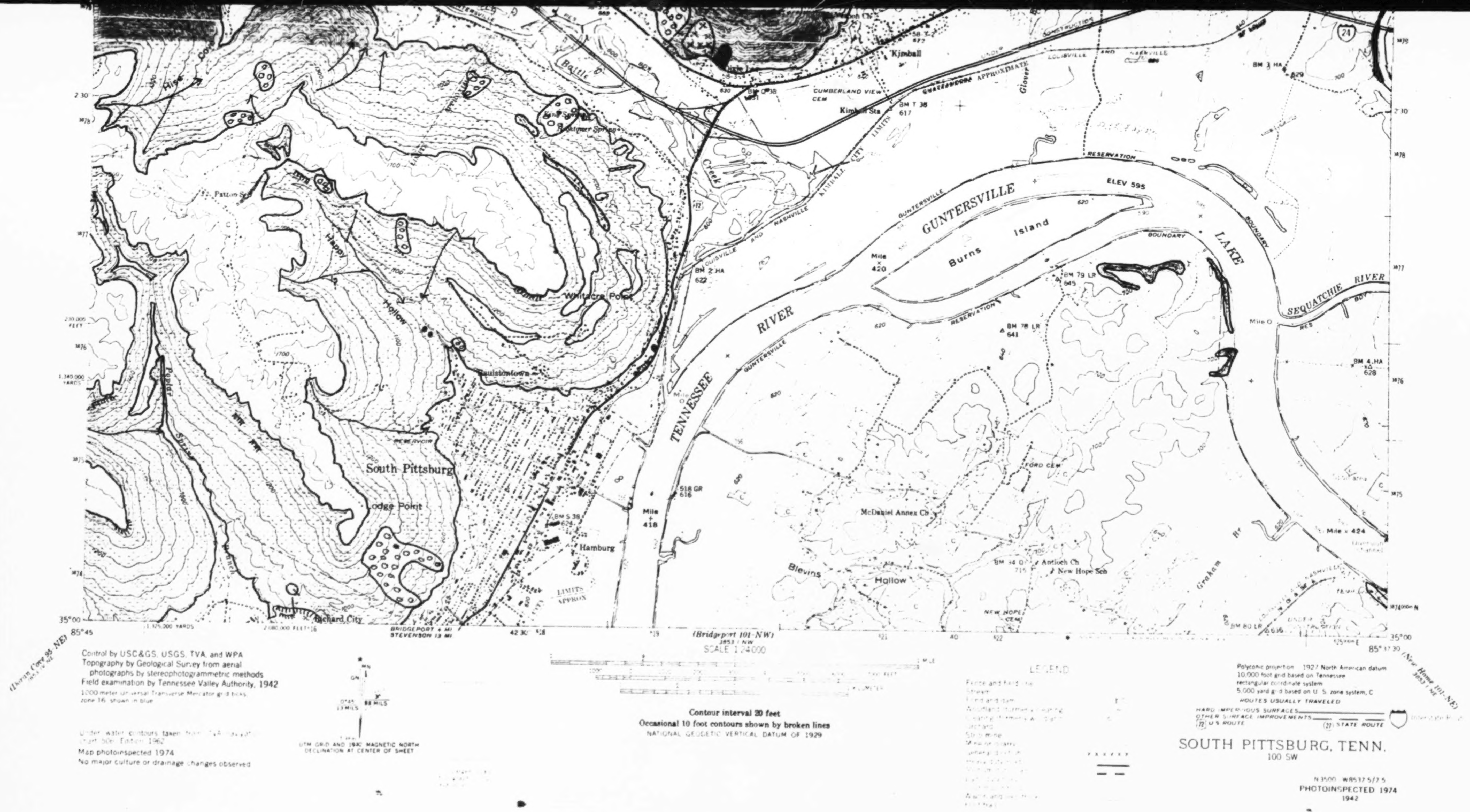
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION

TENNESSEE
(MARION COUNTY)
SOUTH PITTSBURG QUADRANGLE
100-SW

Control by USC&GS, USGS, TVA, and WPA
Topography by Geological Survey from aerial
photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1942



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Photointerpretation and field check 1981
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LANDSLIDES AND RELATED FEATURES

OF THE SOUTH PITTSBURG, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (A-3)

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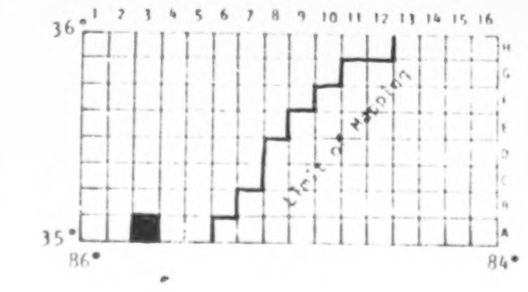

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UNITED STATES
DEPARTMENT OF THE INTERIOR
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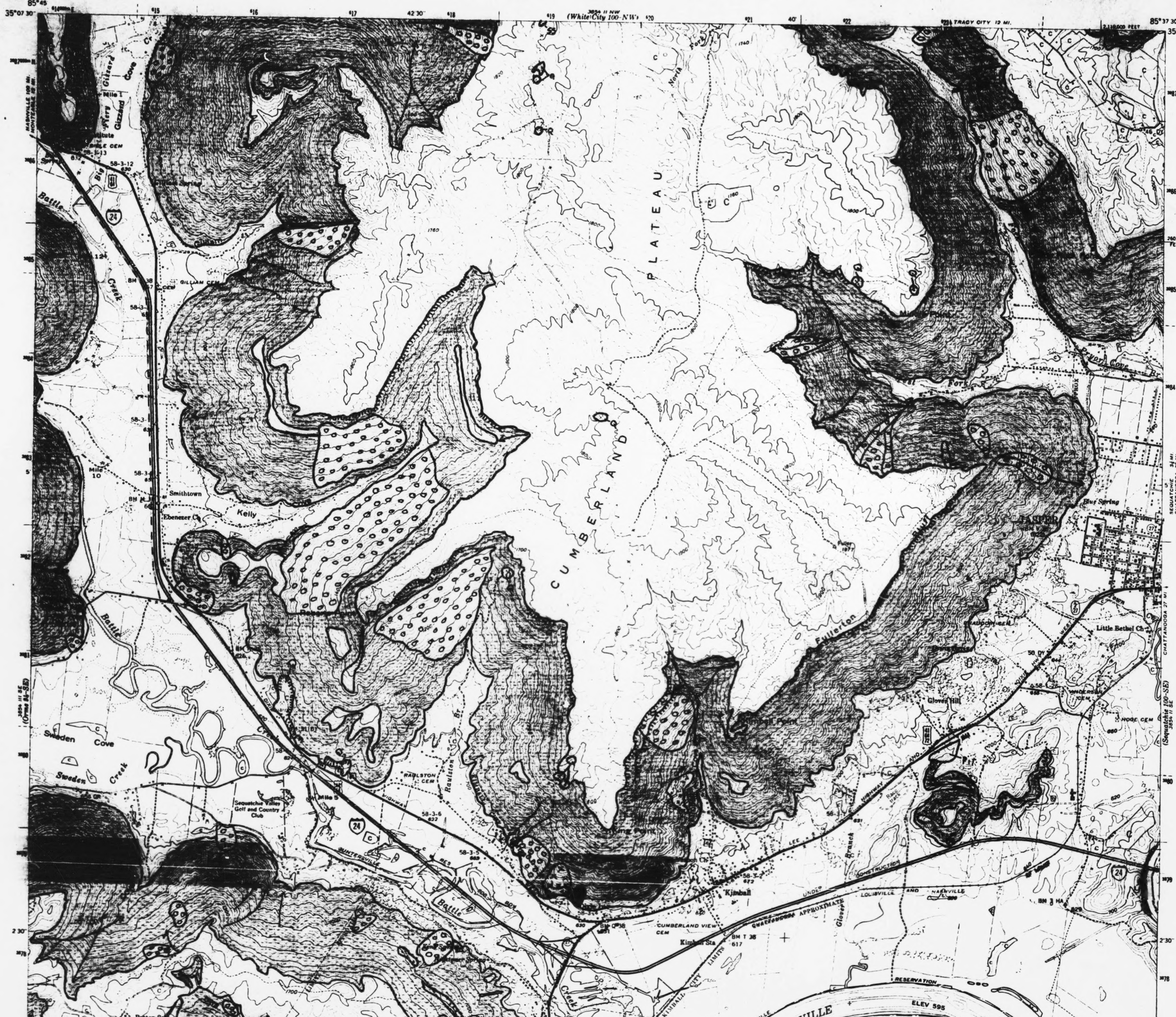
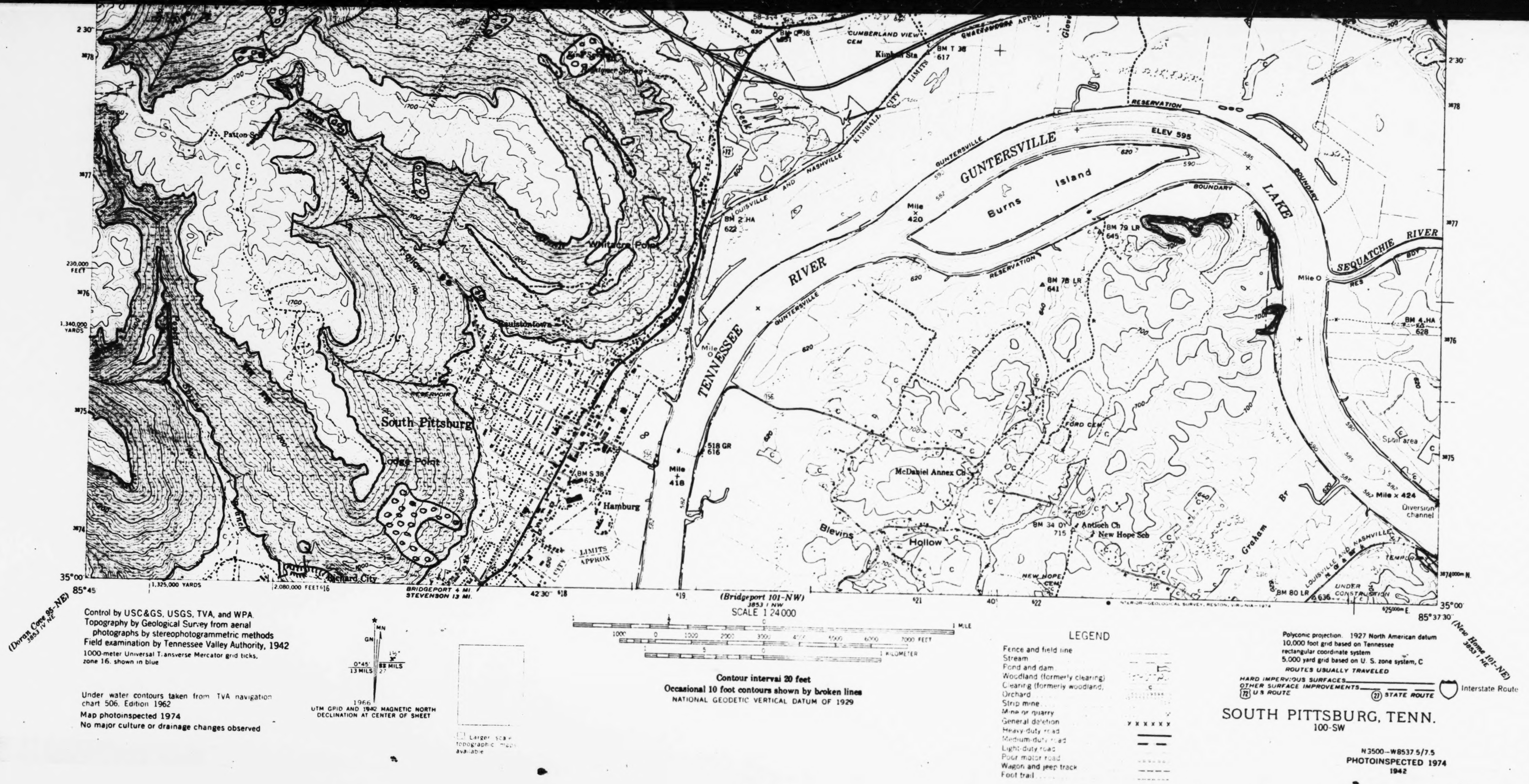
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION

TENNESSEE
(MARION COUNTY)
SOUTH PITTSBURG QUADRANGLE
100-SW





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LANDSLIDES AND RELATED FEATURES

OF THE SOUTH PITTSBURG, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (A-3)

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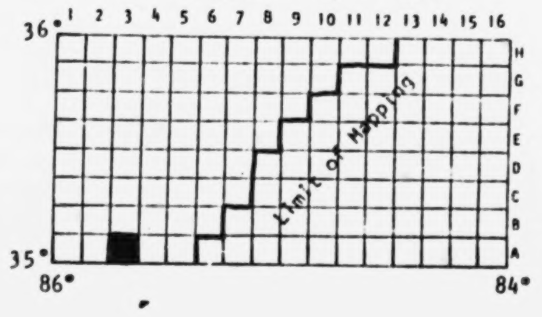

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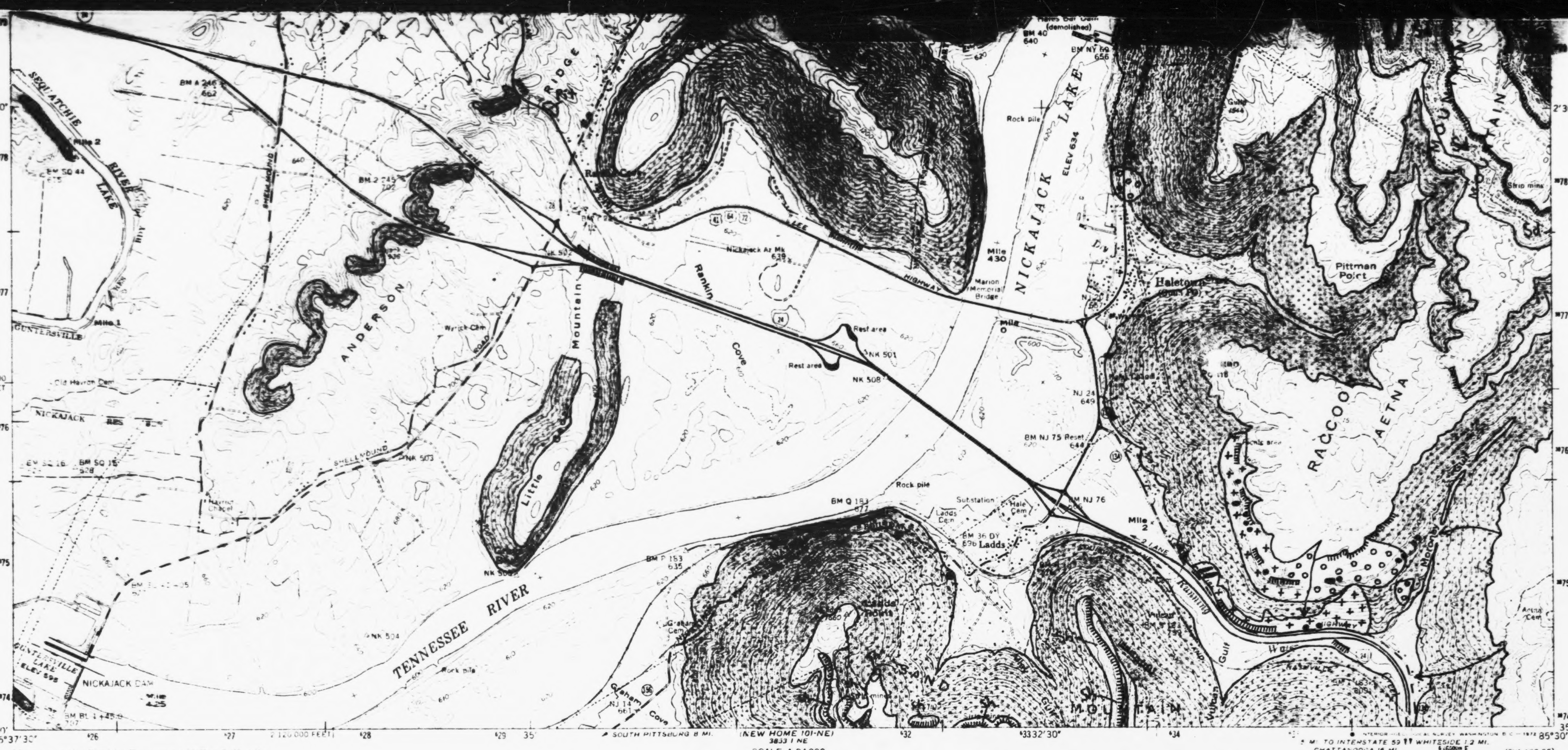
MAPS AND SURVEYS BRANCH

SEQUATCHIE QUADRANGLE
TENNESSEE-MARION CO.
7.5 MINUTE SERIES (TOPOGRAPHIC) 100-SE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USC&GS, USGS, WPA, and TVA

SCALE 1:24000

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Poor motor road
Wagon and jeep track



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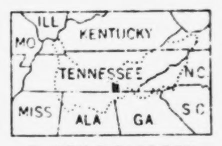
SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Interstate Route   U. S. Route   State Route

In developed areas, only through roads are classified.

SEQUATCHIE, TENN.
N3500—W8530/7.5
1970

Landslides and related features interpreted from aerial photographs:

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Photointerpretation and field check 1981

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

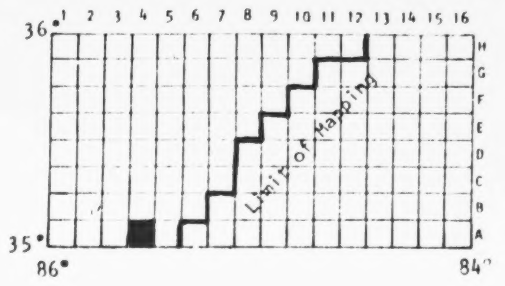
Gravel pits

q	site of gravel pit

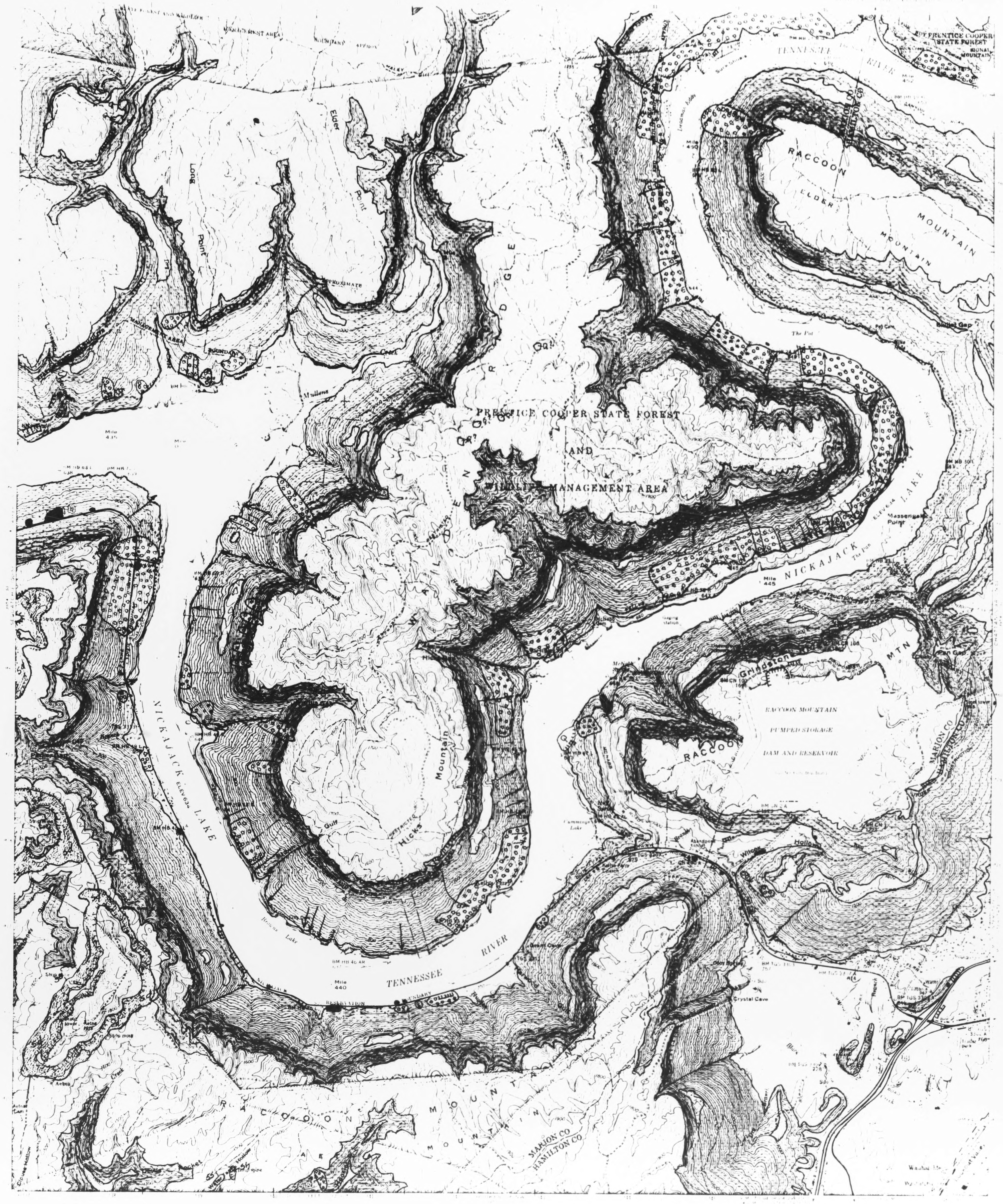
Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

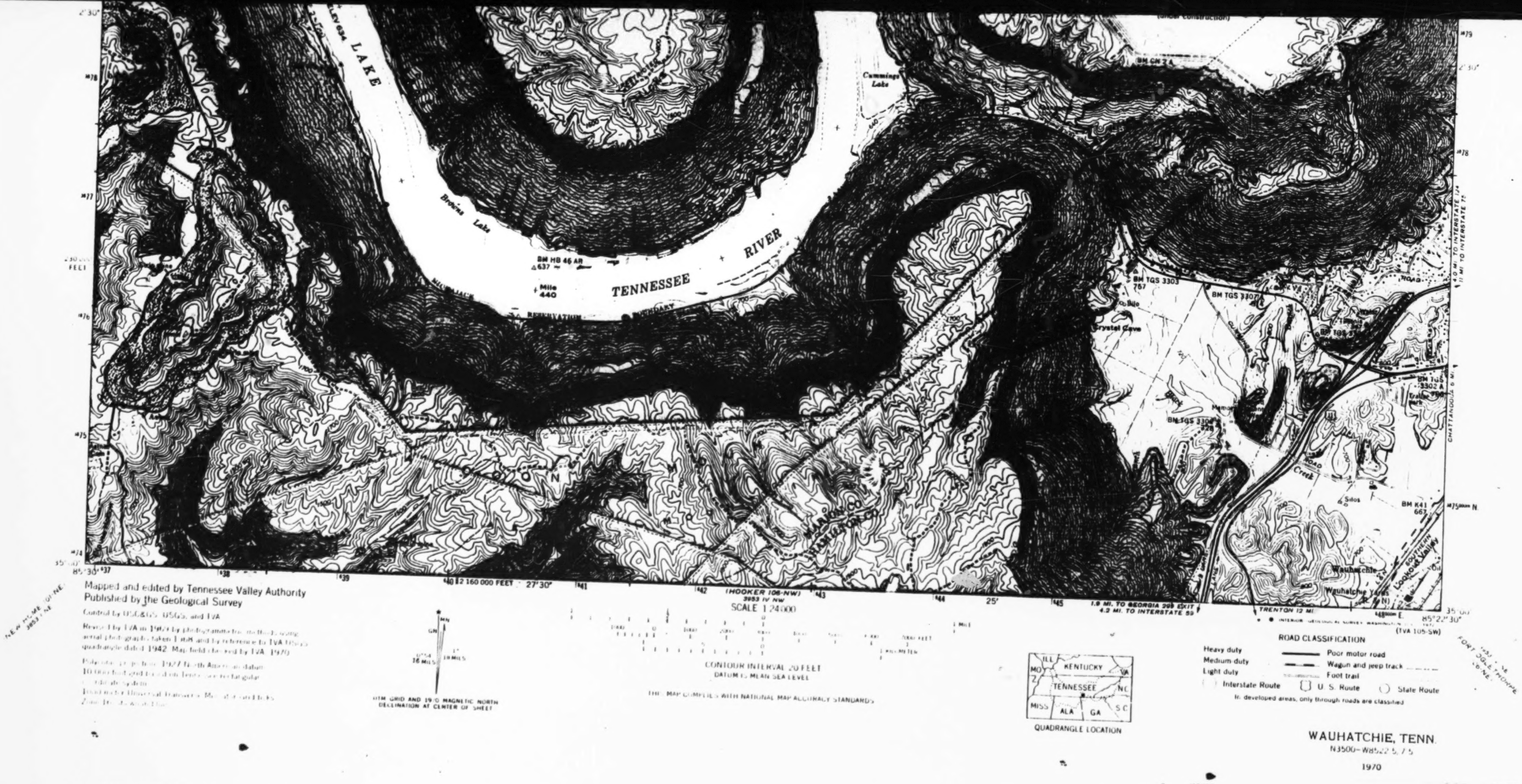
CHATTANOOGA 1° by 2° SHEET



best copy available



PRENTICE COOPER STATE FOREST
AND
WILDLIFE MANAGEMENT AREA
RACCOON
ELDER
MOUNTAIN
NICKAJACK
LAKE
TENNESSEE
RIVER
RACCOON MOUNTAIN
PUMPED STORAGE
DAM AND RESERVOIR
MTN
Mountain
Hicks
Gulf
Crystal Cave
MARION CO
HAMILTON CO
Mile
445
Mile
440



Landslides and related features interpreted from aerial photographs:

1:20,000 (Black and White) 1973

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE WAUHATCHIE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (A-5)

NOTE

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Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

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- sf furrowed with high wall
- sd multiple furrows and multiple benches
- ss hilltop removed
- srg reclaimed by grading
- sru reclaimed by secondary use
- sh/r regraded in part, high wall remains

Coal refuse banks

- r identified on aerial photographs; not classified in field check
- rb not burnt nor on fire
- rbb burnt
- rbd burning
- rbs sludge

Quarries

- q quarry site

Gravel pits

- q site of gravel pit

Slides in man-made features

- af earth flow in fill
- a/s earth flow in strip castings
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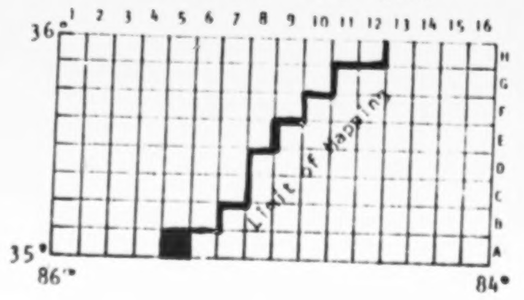
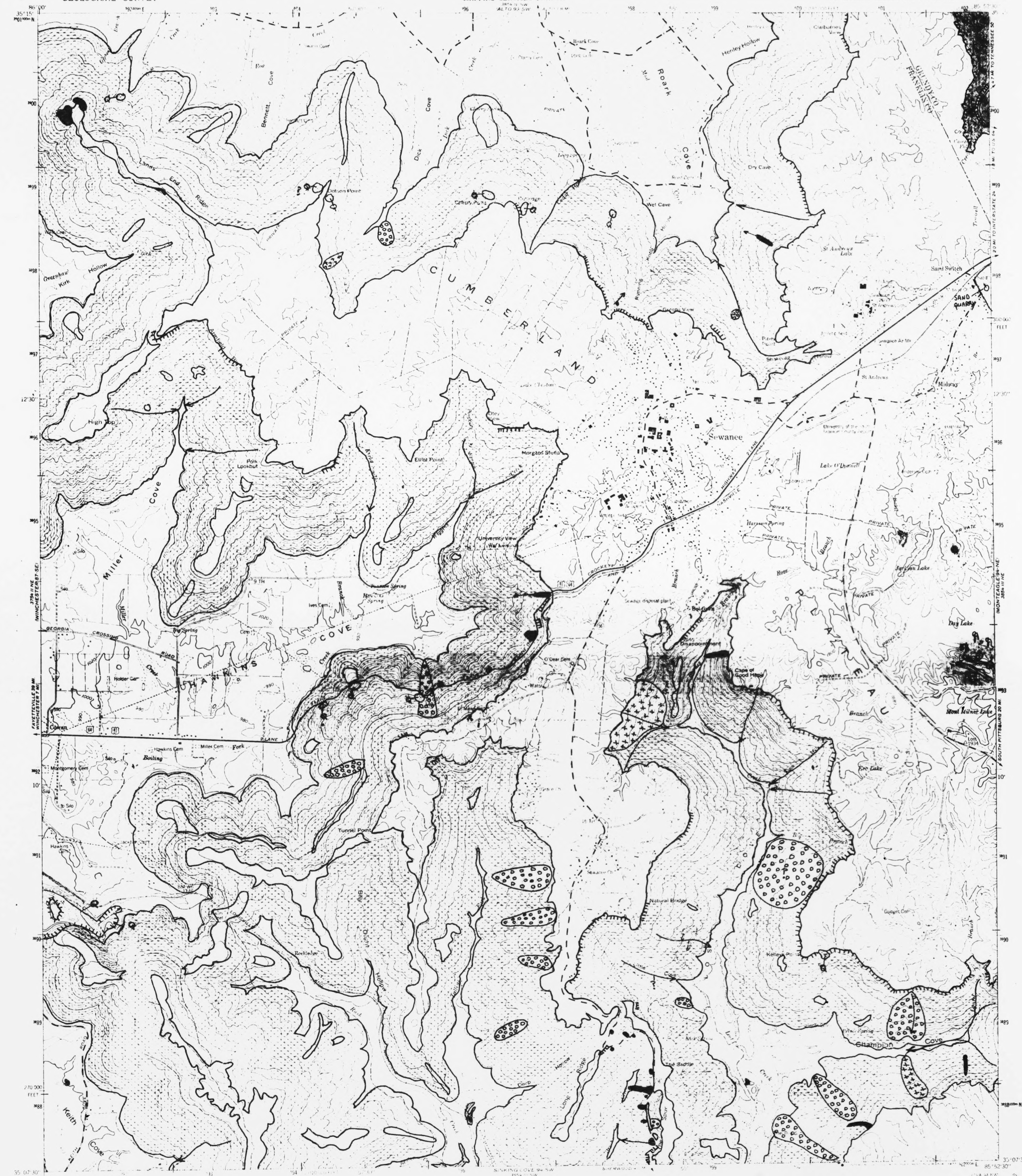
CHATTANOOGA 1° by 2° SHEET



DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 94-NW



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Revised by TVA in 1974 by photogrammetric methods using aerial photographs taken 1974 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1974

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000 metre Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

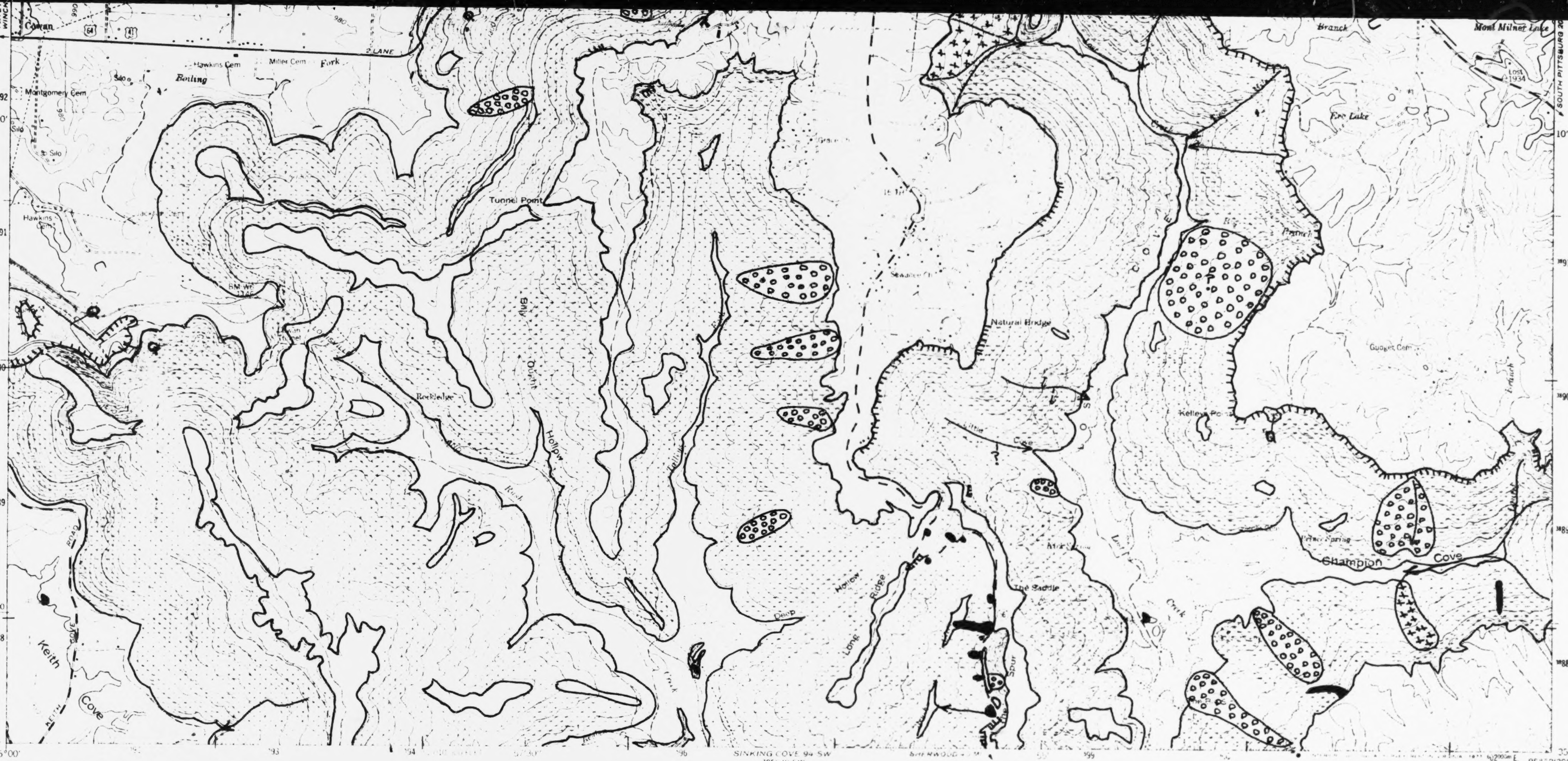
UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy duty — Poor motor road
Medium duty — Wagon and jeep track
Light duty — Foot trail
Interstate Route — U. S. Route — State Route
In developed areas, only through roads are classified

SEWANEE, TENN.
N3507.5-W8552.5/7.5



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Revised by TVA in 1974 by photogrammetric methods using aerial photographs taken 1974 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1974

Polyconic projection. 1927 North American datum
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UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy duty — Poor motor road
Medium duty — Wagon and jeep track
Light duty — Foot trail
Interstate Route — U. S. Route — State Route

In developed areas, only through roads are classified

SEWANEE, TENN.
N3507.5-W8552.5/7.5

1974

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1974
1:40,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE SEWANEE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (B-1)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

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Coal refuse banks

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rbd	burning
rbs	sludge

Quarries

q	quarry site

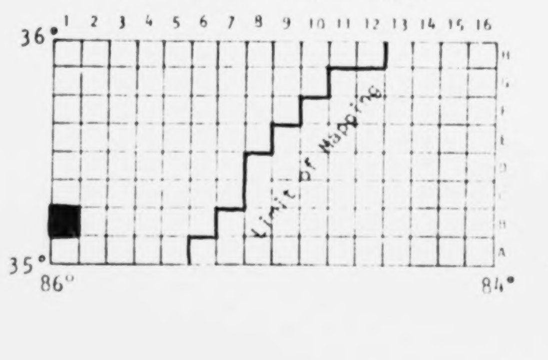
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

MONTEAGLE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 94-NE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

SCALE 1:24 000

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Poor motor road
Wagon and jeep track

(TVA 94-NE)

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, WPA, and TVA

Revised by TVA in 1974 by photogrammetric methods using aerial photographs taken 1974 and by reference to TVA-USGS quadrangle dated 1950. Map field checked by TVA, 1974

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000 metre Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Interstate Route U. S. Route State Route

In developed areas, only through roads are classified

MONTEAGLE, TENN.
N3507.5-W8545/7.5

1974

LANDSLIDES AND RELATED FEATURES

OF THE MONTEAGLE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (B-2)

Landslides and related features interpreted from aerial photographs:
1:75,000 (Black and White) 1974
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

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Slides in man-made features

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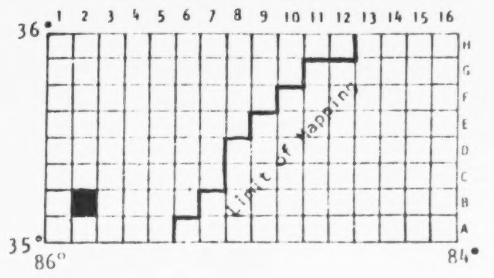
CHATTANOOGA 1° by 2° SHEET



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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

WHITE CITY QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 100-NE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Zone 16, shown in blue

WHITE CITY, TENN.

1947

LANDSLIDES AND RELATED FEATURES

OF THE WHITE CITY, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1312 (B-3)

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1974
1:20,000 (Black and White) 1975

Photointerpretation and field check 198

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

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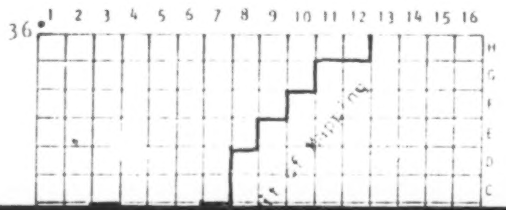


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

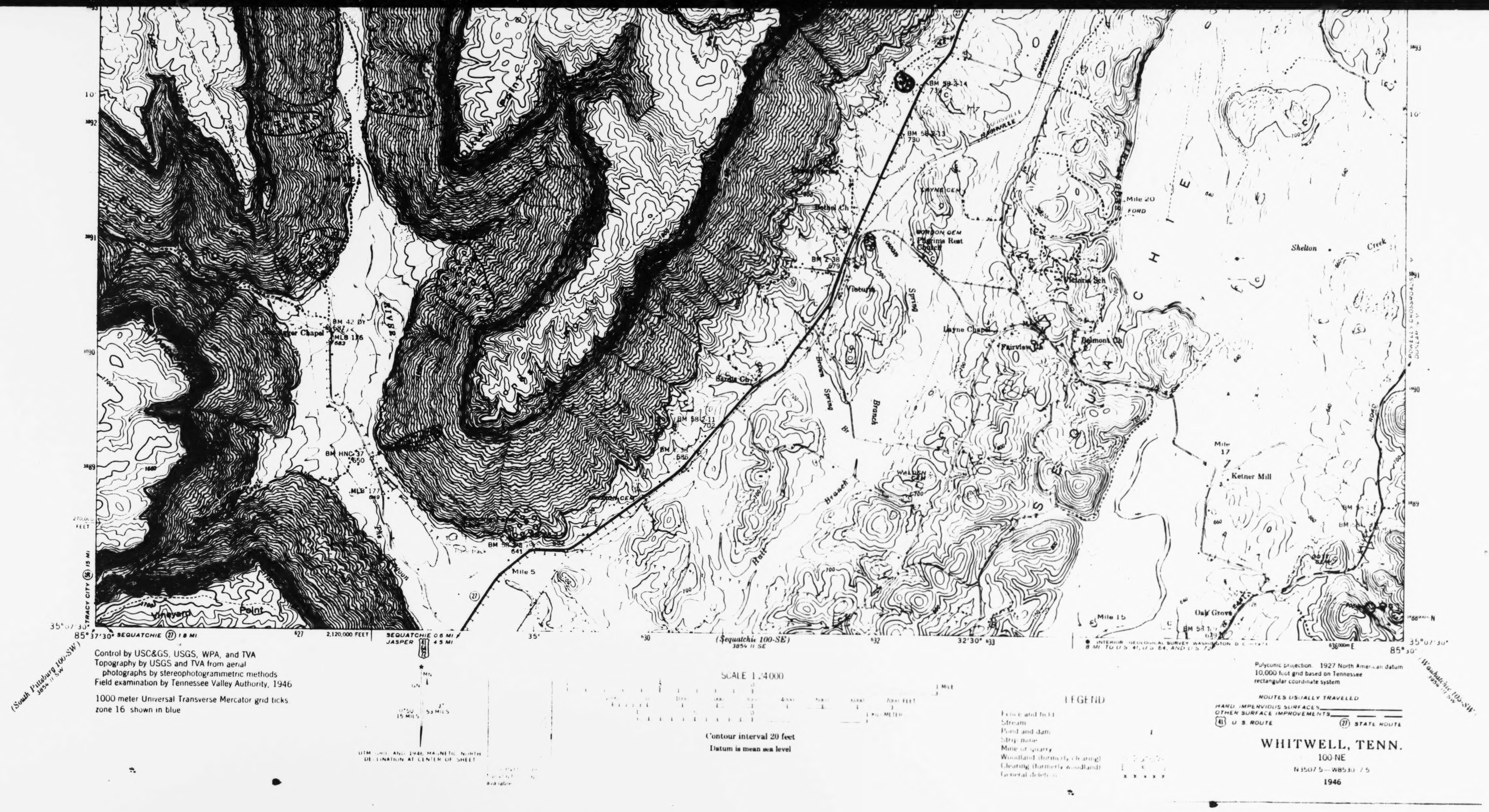
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

TENNESSEE
(MARION COUNTY)
WHITWELL QUADRANGLE
100 NE

Control by USC&GS, USGS, WPA, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1946

1000 meter Universal Transverse Mercator grid ticks

SCALE 1:24000



Landslides and related features interpreted from aerial photographs:

1:20,000 (Black and White) 1973

Photo interpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE WHITWELL, TENN. QUADRANGLE

by

Roger E. Thomas

1981

U.S. Geological Survey

OPEN FILE MAP 81-1318 (B-4)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

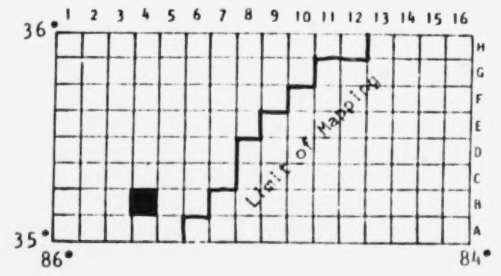
Gravel pits

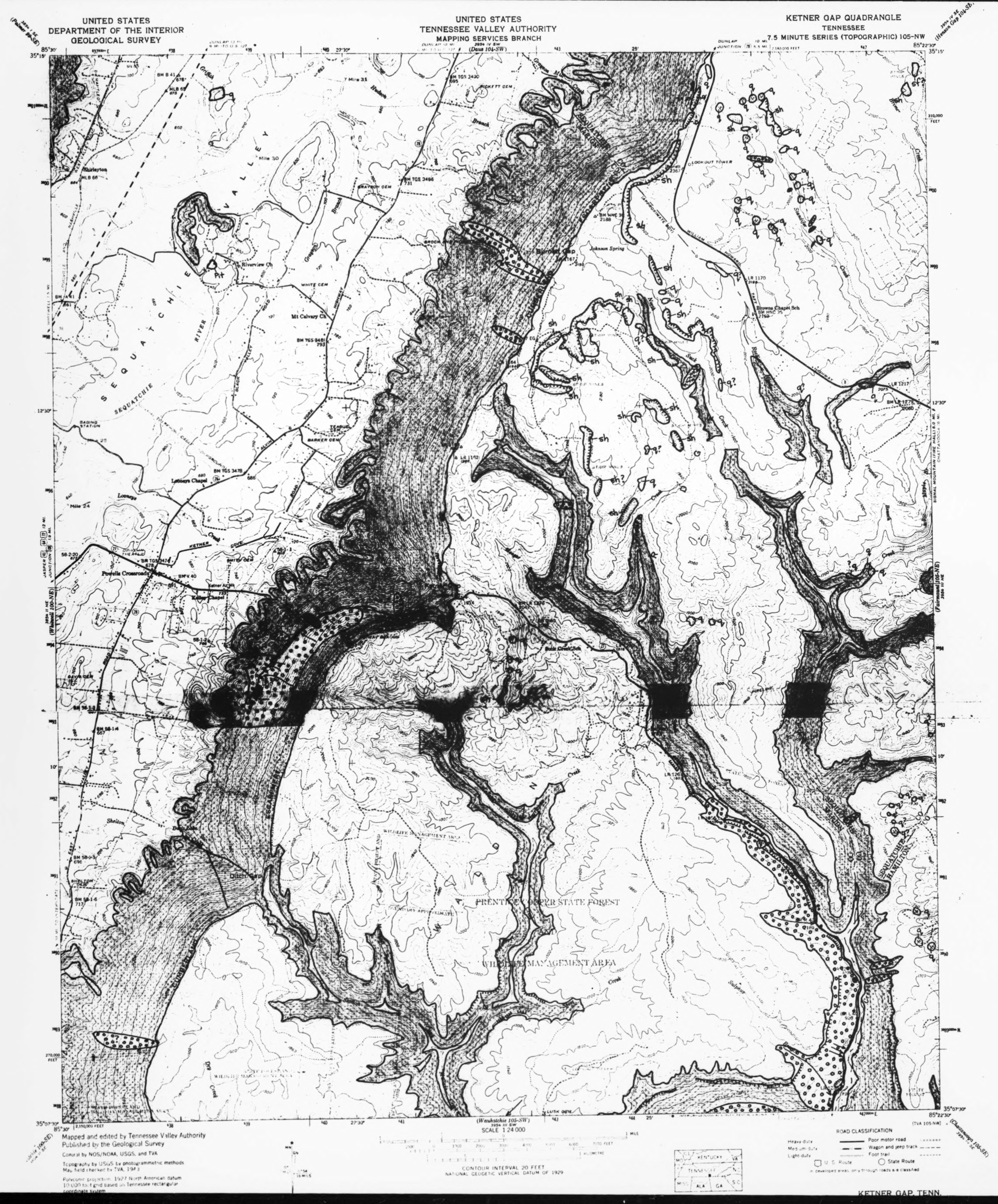
g	site of gravel pit

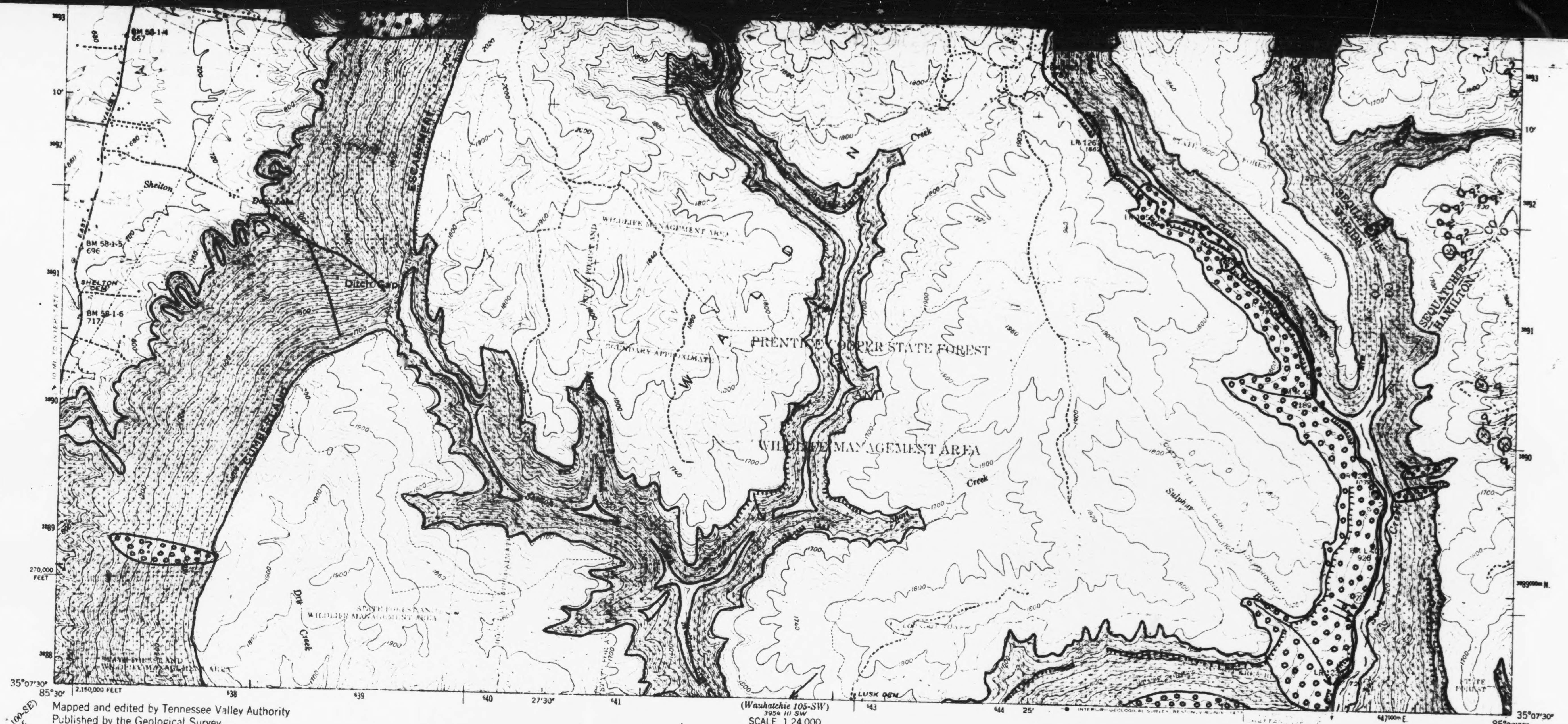
Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET




UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH
KETNER GAP QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 105-NW
SEQUATCHIE RIVER VALLEY
PRENTICE COOPER STATE FOREST
WILDLIFE MANAGEMENT AREA
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOS/NOAA, USGS, and TVA
Topography by USGS by photogrammetric methods
Map field checked by TVA, 1943
Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Poor motor road
Wagon and jeep track
Foot trail
U. S. Route
State Route
In developed areas, only through roads are classified
KETNER GAP, TENN.



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

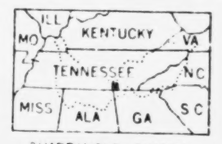
Topography by USGS by photogrammetric methods
Map field checked by TVA, 1943

Polyconic projection. 1927 North American datum
10 000 foot grid based on Tennessee rectangular coordinate system
1000 metre Universal Transverse Mercator Grid ticks
Zone 16, shown in blue

UTM GRID AND 1976 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U. S. Route — State Route
In developed areas, only through roads are classified

KETNER GAP, TENN.
N3507.5—W8522.5/7.5

1943
PHOTOREVISED 1976

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Milici, R.C., Coker, A.E., Luther, E.T., 1972
Geologic map of the Ketner Gap quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE KETNER GAP, QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (B-5)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
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SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
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NOTE
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MAN-MADE FEATURES
Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
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sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
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rbs	sludge

Quarries

q	quarry site

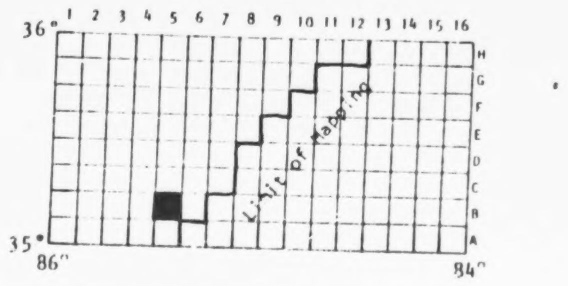
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET



best copy available

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

FAIRMOUNT QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 105-NE

(CHATTANOOGA 105-SE)
3954 III SE
SCALE 1:24 000

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOS/NOAA, USGS, and TVA

ROAD CLASSIFICATION
Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Revised by TVA in 1968 by photogrammetric methods using aerial photographs taken 1968 and by reference to TVA-USGS quadrangle dated 1958. Map field checked by TVA, 1969

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system
1000-metre Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

FAIRMOUNT, TENN.
N3507.5—W8515/7.5

1969
PHOTOREVISED 1976

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Luther, E.T., Swingle, G.D., 1963
Geologic map of the Fairmount quadrangle, Tennessee.
Tennessee Department of Conservation,
Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE FAIRMOUNT, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (B-6)

NOTE

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Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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AREAS LEAST PRONE TO LANDSLIDES
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MAN-MADE FEATURES
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sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

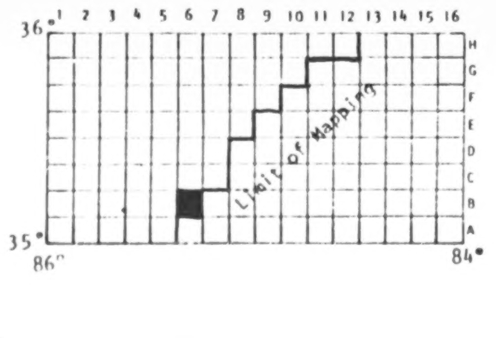
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

ALTO QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 93-SW

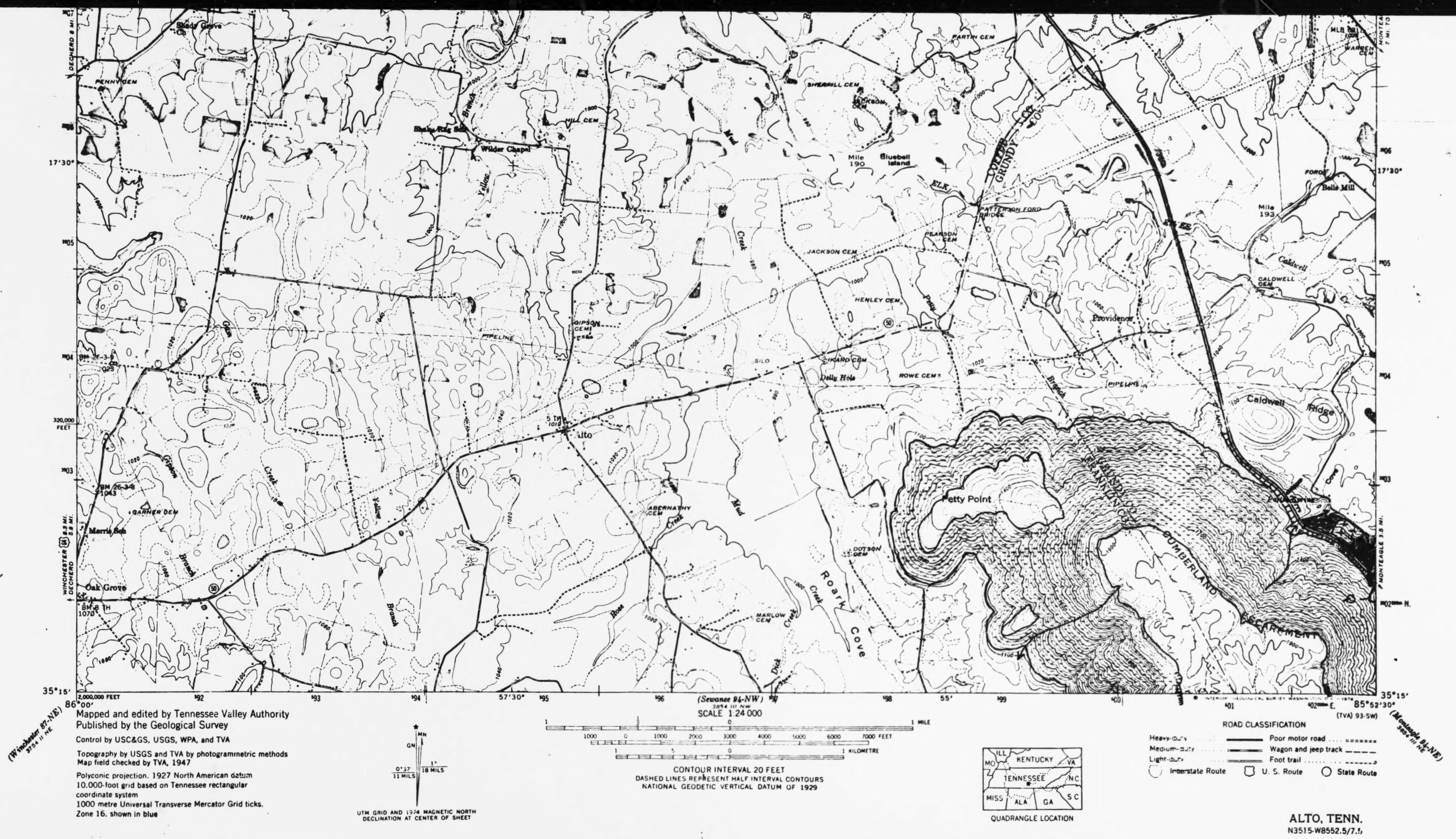
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USC&GS, USGS, WPA, and TVA

SCALE 1:24 000

ROAD CLASSIFICATION

(TVA) 93-SW



ALTO, TENN.
N3515-W8552.5/7.5
1947
PHOTOREVISED 1974

Landslides and related features interpreted from aerial photographs:-
1:79,000 (Black and White) 1974
1:20,000 (Black and White) 1973
1:40,000 (Black and White) 1976
1:40,000 (Black and White) 1979
Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE ALTO, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-1)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks
- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
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Quarries
- q — quarry site

Gravel pits
- q — site of gravel pit

Slides in man-made features
- af — earth flow in fill
- a/s — earth flow in strip castings
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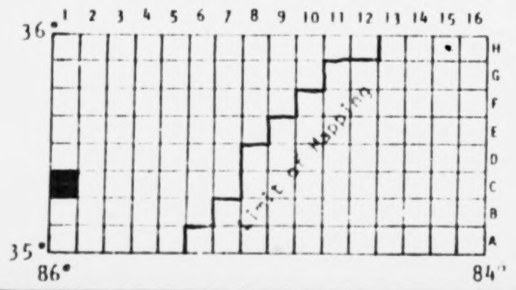
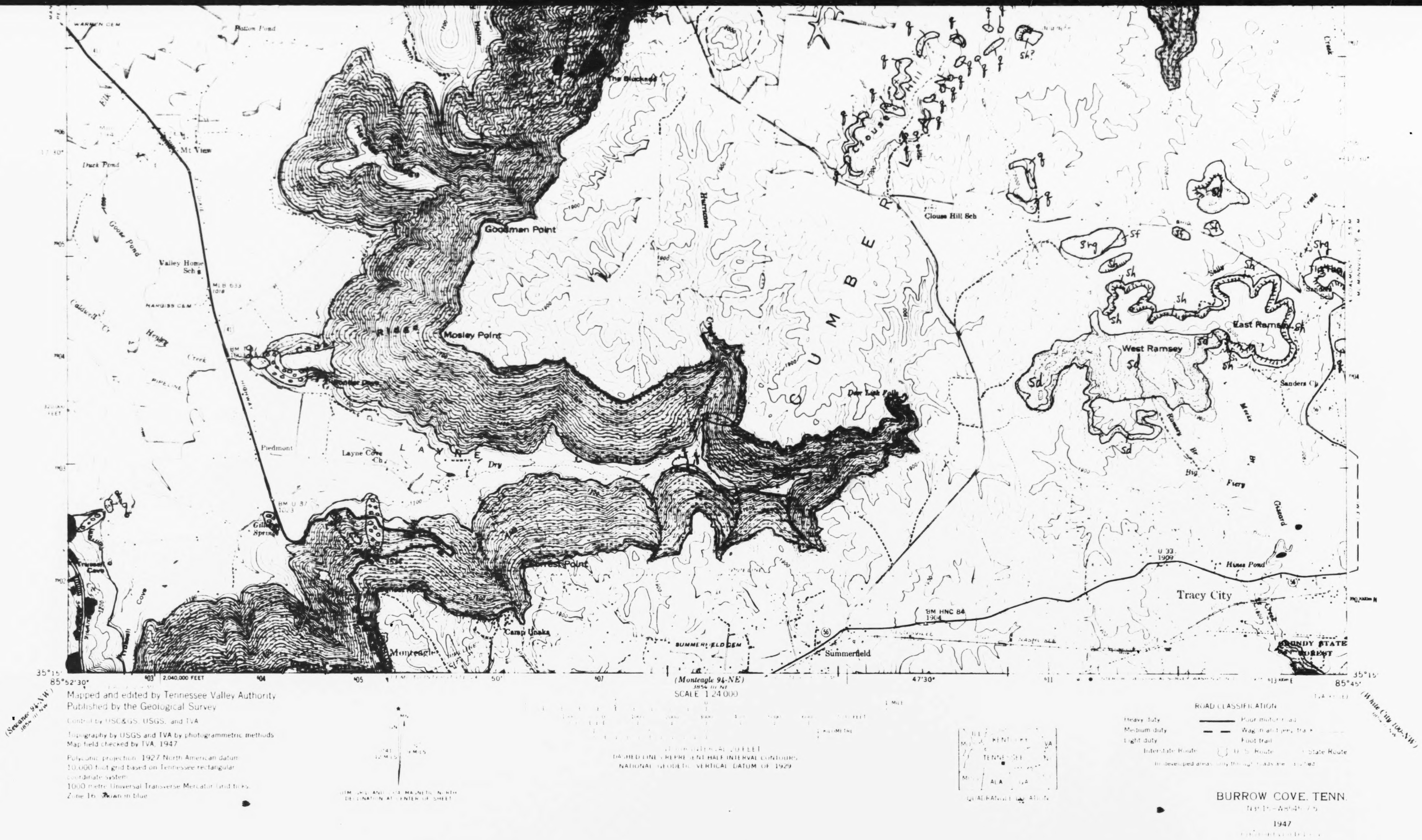
CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
BURROW COVE QUADRANGLE
TENNESSEE
Piney Point
Natural Bridge
Tanyard Point
BURROW COVE
PAYNE COVE
TENNESSEE VALLEY DIVIDE
PLATEAU
Elkhead Sch
Bethel Ch
Campground Sch
Payne Cove Sch
Mt View
Duck Pond
Valley Home Sch
Goodman Point
Mosley Point
Piedmont
Layne Cove
Clouse Hill Sch
West Ramsey
East Ramsey
Tracy City
Summerfield
Camp Oaks
Monteagle
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey



Landslides and related features interpreted from aerial photographs:
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1:20,000 (Black and White) 1973

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE BURROW COVE, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-2)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

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MAN-MADE FEATURES
Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

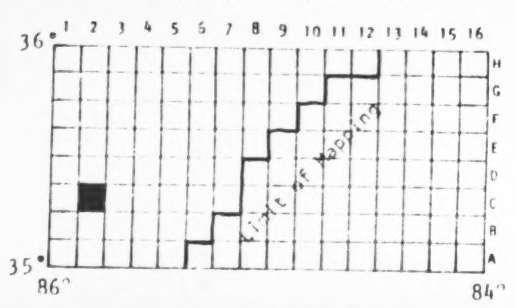
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
TRACY CITY QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 99-SW
Victoria Sch
Fall Creek
Luchsinger Gap
TENNESSEE VALLEY DIVIDE
Stocker Hill
Coalmont
Swanton Hill
PLATEAU
Fults Hill
Flat Branch
Scott Hill
Greentown
Cane Mountain
Buttermilk Ridge
Hobbs Hill
Orange Hill Ch
GRUNDY LAKES STATE PARK
Gum Spring Ch
Tracy City
Brown
Myers Hill
White City
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
SCALE 1:24 000
ROAD CLASSIFICATION
TVA 99-SW

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1974
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE TRACY CITY, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-3)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

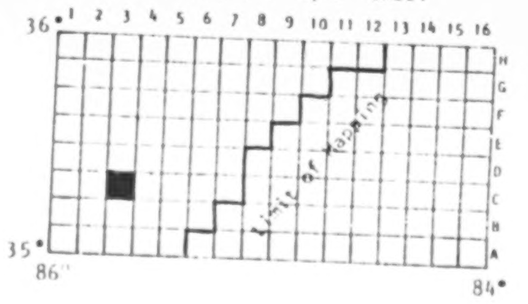
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

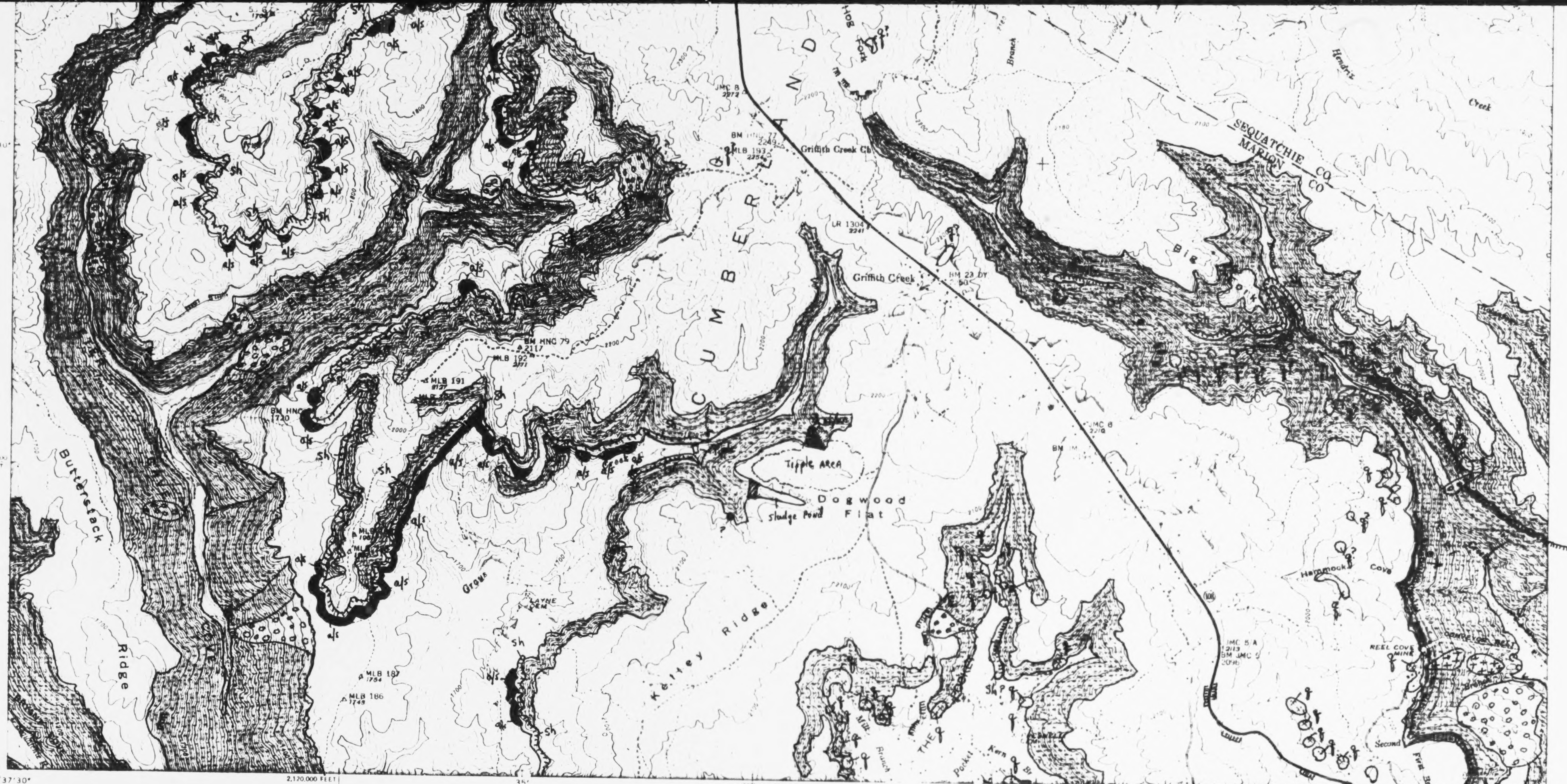
CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

TENNESSEE
PALMER QUADRANGLE



Control by USC&GS, USGS, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1947

Maps distributed by the Geological Survey

APPROXIMATE MEAN DECLINATION, 1950

(Whitwell 100-NE)

SCALE 1:24 000

Contour interval 20 feet
Datum is mean sea level

PALMER, TENN.
99 SE
Edition of 1950

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE PALMER, TENN. QUADRANGLE

by
Roger E. Thomas
U.S. Geological Survey
1981
OPEN FILE MAP 81-1318 (C-4)

NOTE
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OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40° (85?); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

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Strip mines (combination of letter symbols indicates complex formed of more than one type of strip mine)

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sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

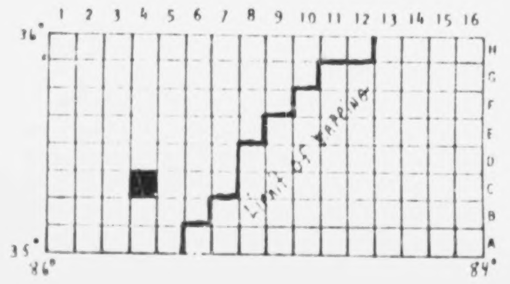
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

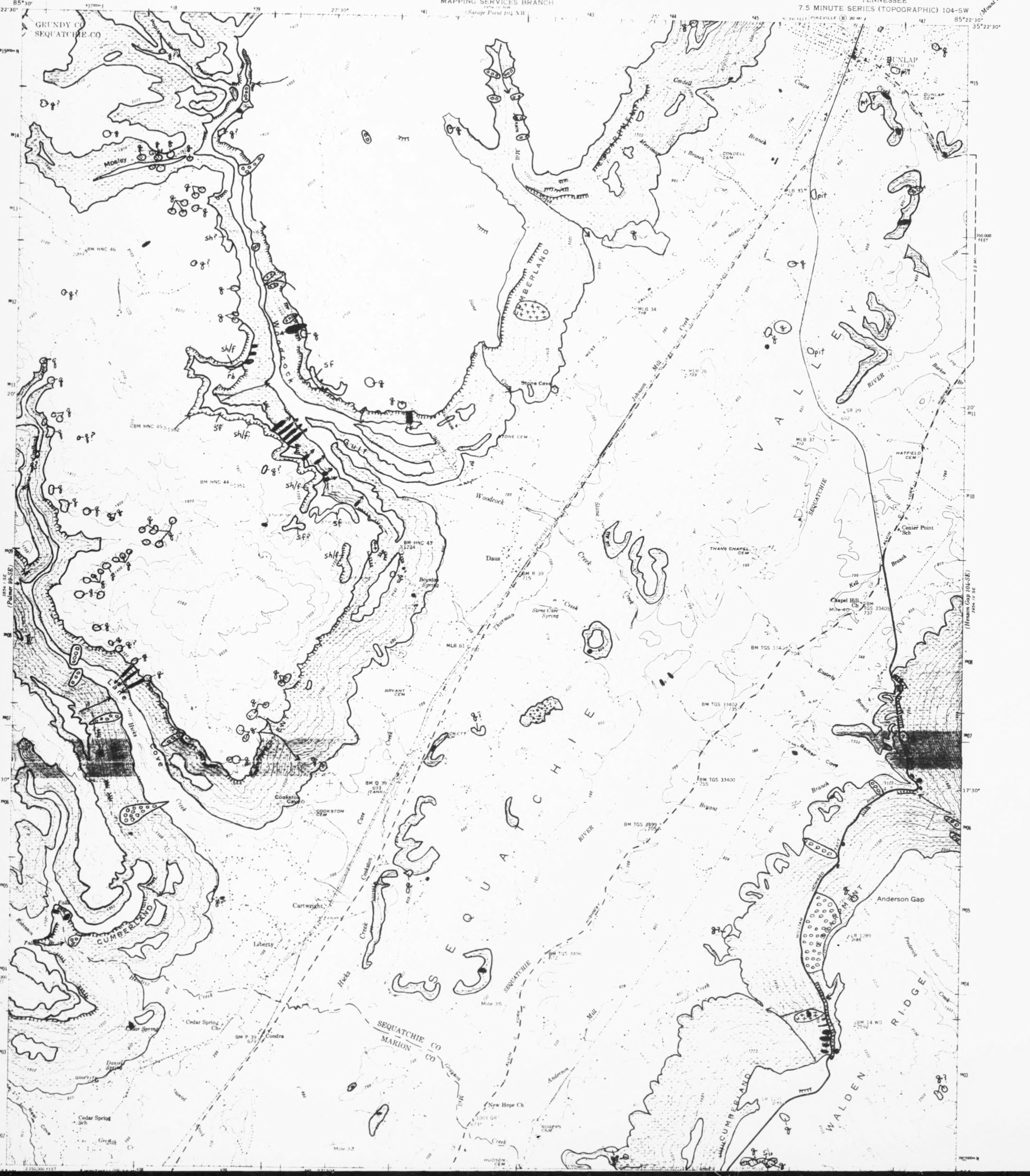
Chattanooga 1° by 2° sheet



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

DAUS QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 104-SW



DAUS, TENN.
N3515—W8522.5/7.5

1946
PHOTOREVISED 1974

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:20,000 (Black and White) 1973
1:79,000 (Black and White) 1974

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE DAUS, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-5)

NOTE

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COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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AREAS LEAST PRONE TO LANDSLIDES
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Coal refuse banks

r	identified on aerial photographs; not classified in field check
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rbs	sludge

Quarries

q	quarry site

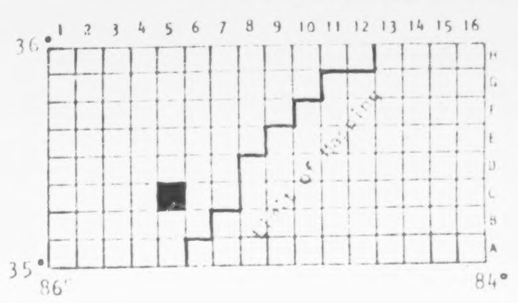
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° by 2 SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION

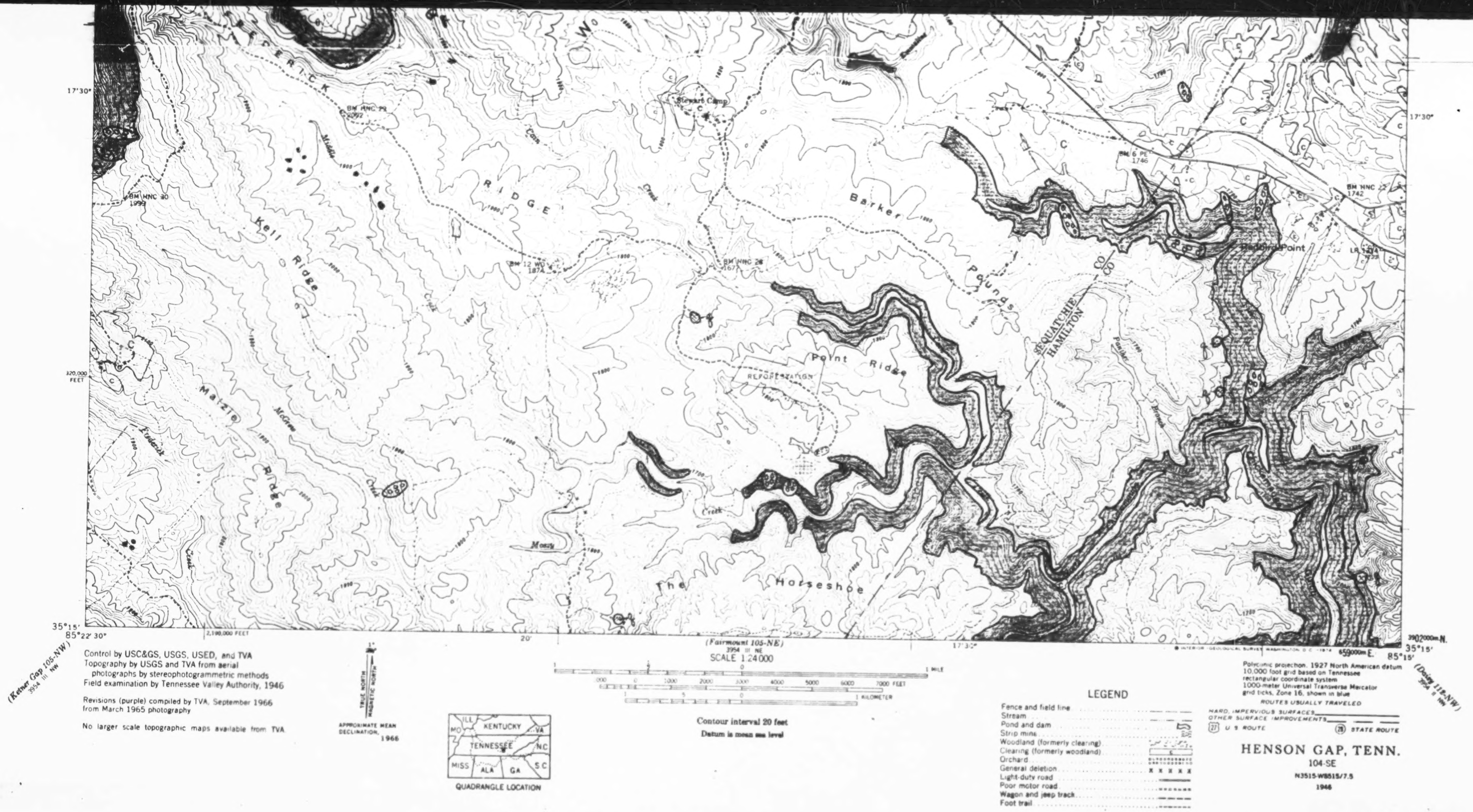
TENNESSEE
HENSON GAP QUADRANGLE
104-SE

SCALE 1:24 000

Control by USC&GS, USGS, USED, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1946

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks, Zone 16, shown in blue

LEGEND



Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:79,000 (Black and White) 1974

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE HENSON GAP, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-6)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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- q — quarry site

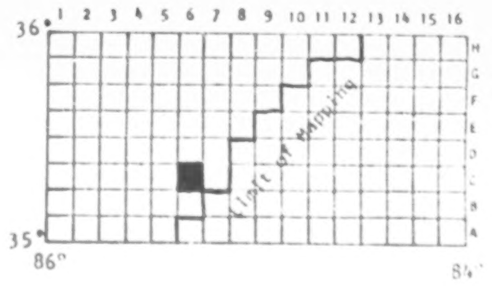
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANQOGA 1° by 2° SHEET



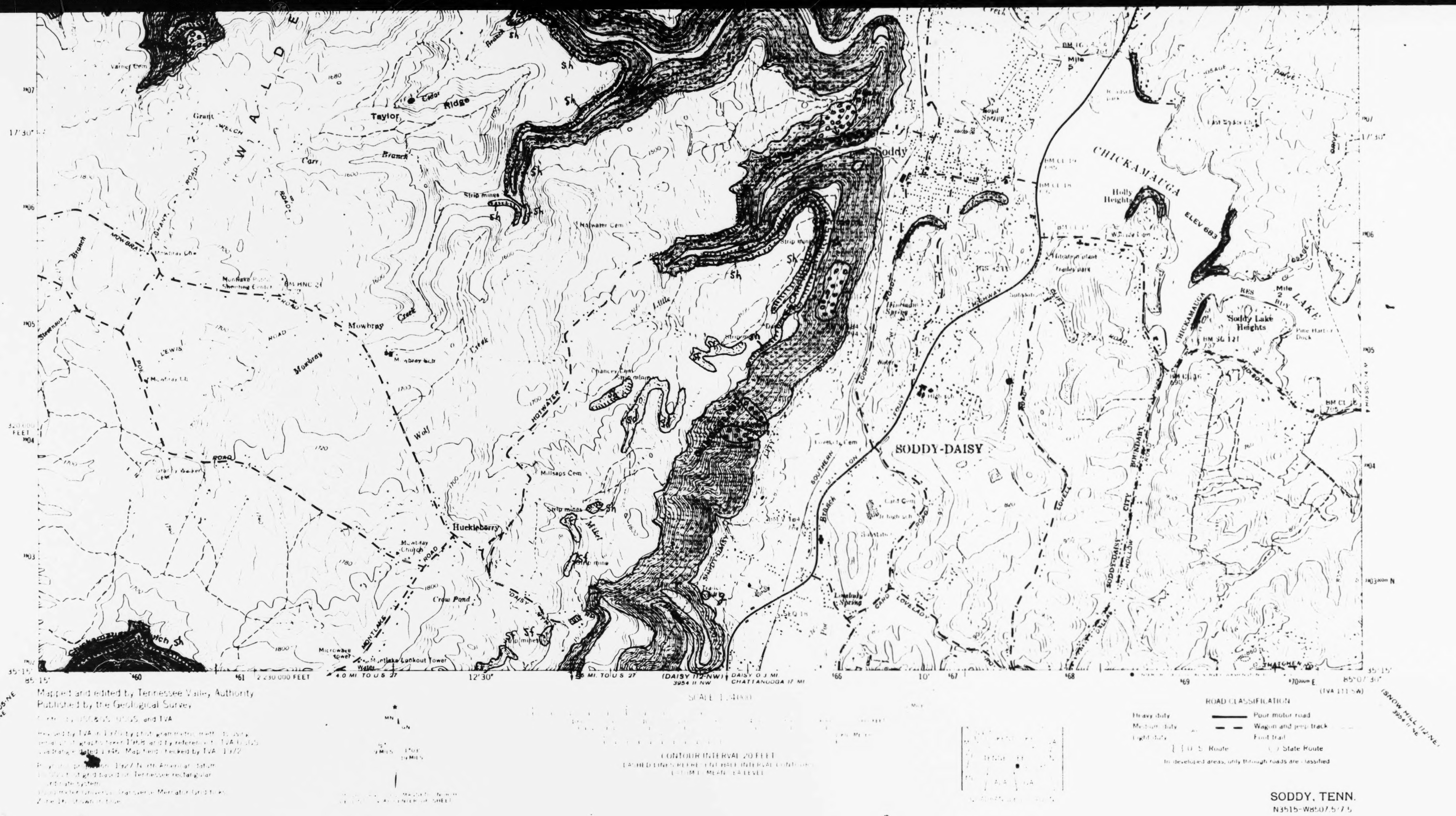
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

SODDY QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

CONTOUR INTERVAL 20 FEET



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1:20,000 (Black and White) 1970
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Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Swingle, G.D., and Luther, E.T., 1964
Geologic map of the Soddy quadrangle, Tennessee.
Tennessee Department of Conservation,
Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE SODDY, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (C-7)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

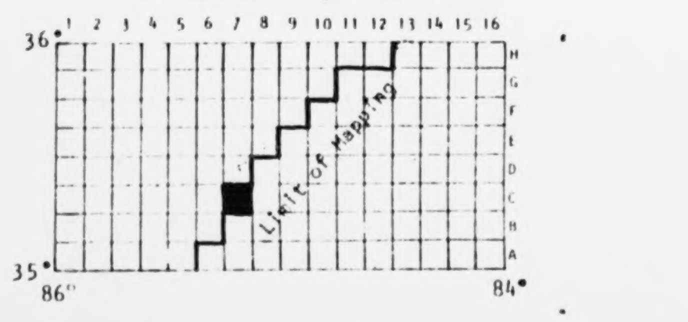
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

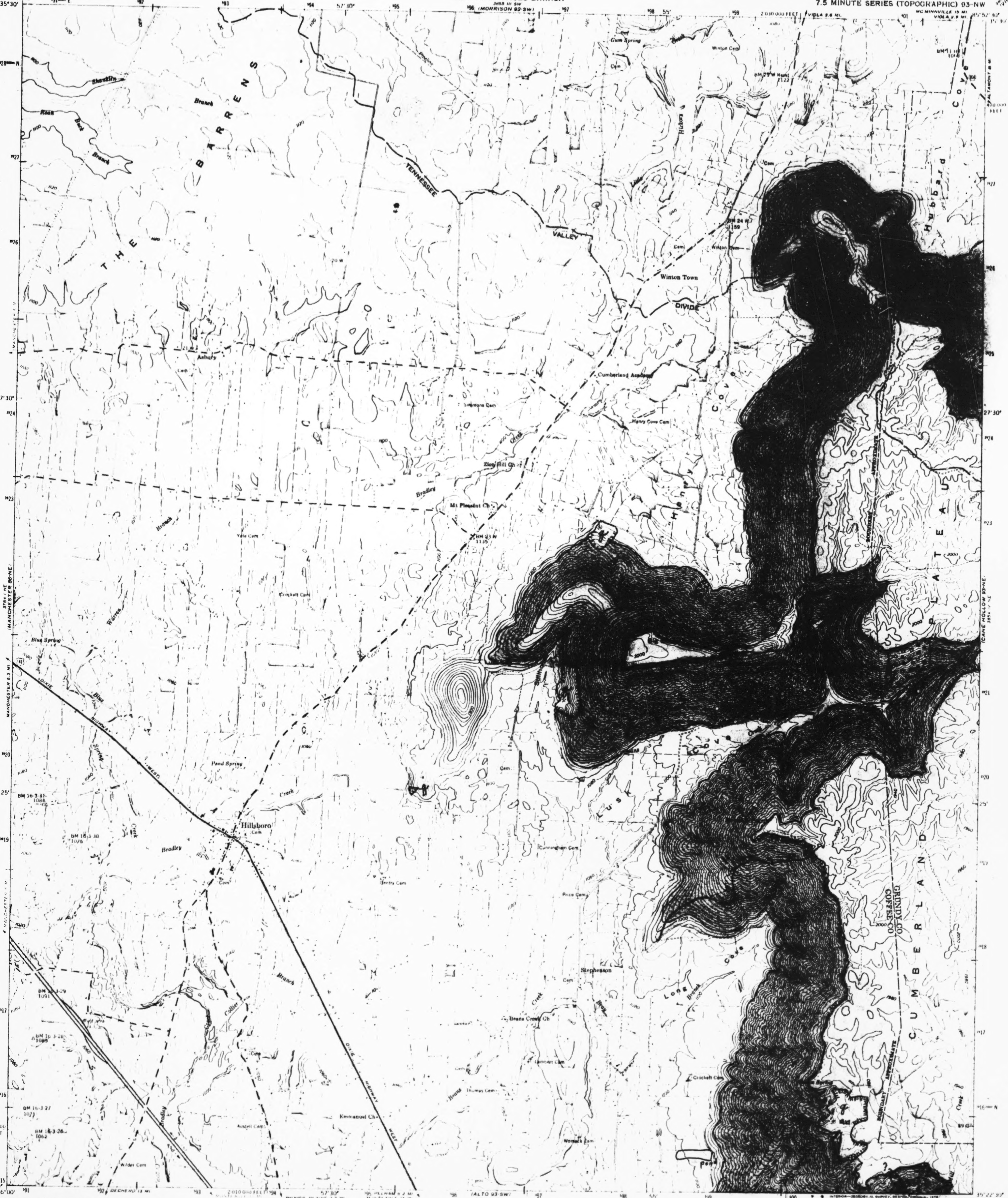
CHATTANOOGA 1° by 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

HILLSBORO QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 93-NW



SCALE 1:24 000

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOS/NOAA, USGS, WPA, and TVA
Topography by photogrammetric methods using aerial photographs taken 1950. Map field checked by TVA, 1953

ROAD CLASSIFICATION
Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, WPA, and TVA

Topography by photogrammetric methods using aerial photographs taken 1950. Map field checked by TVA, 1953

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000 metre Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

ROAD CLASSIFICATION

Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light duty — Foot trail
Interstate Route — U. S. Route — State Route
In developed areas, only through roads are classified

QUADRANGLE LOCATION

HILLSBORO, TENN.
N3522.5—W8552.5/7.5
1953
PHOTOREVISED 1974

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1973
1:79,000 (Black and White) 1974
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE HILLSBORO, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-1)

NOTE

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ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

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sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
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sh/r	regraded in part, high wall remains

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r	identified on aerial photographs; not classified in field check
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rbd	burning
rbs	sludge

Quarries

q	quarry site

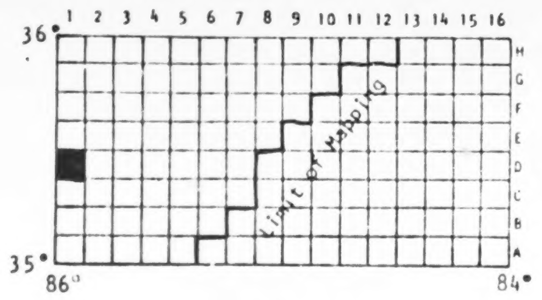
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

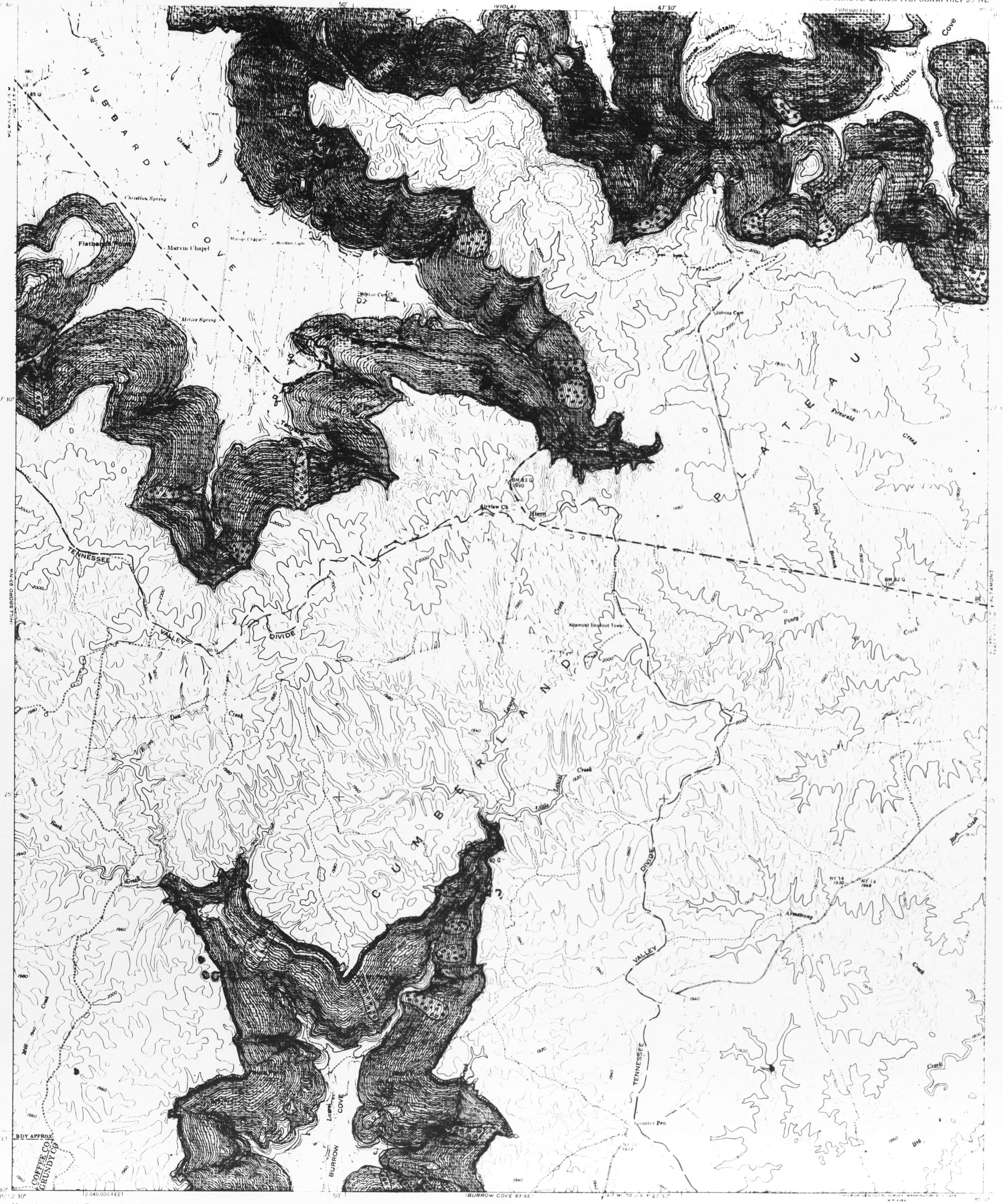
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

CANE HOLLOW QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 93 NE



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USC&GS, USGS, and TVA

SCALE 1:24000

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USC&GS, USGS, and TVA

Topography by multiplex methods from aerial photographs taken 1950. Field examination by TVA, 1956

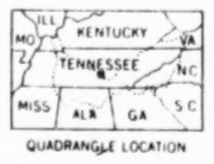
Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system

1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

APPROXIMATE MEAN DECLINATION 1956

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

CANE HOLLOW, TENN.

1956

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and white) 1974
1:20 000 (Black and white) 1973

Photointerpretation and field check 1981.

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE CANE HOLLOW, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-2)

NOTE

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Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
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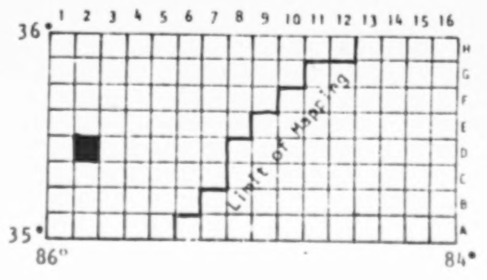
CHATTANOOGA 1° X 2° SHEET



best copy available

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
ALTAMONT QUADRANGLE
Beersheba Spring
Killian Chapel
ALTAMONT
Whispering Pines Sch
Cumberland Heights

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1973
1:79,000 (Black and White) 1974
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE ALTAMONT, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-3)

NOTE

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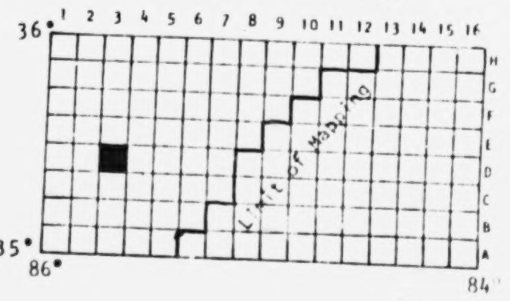
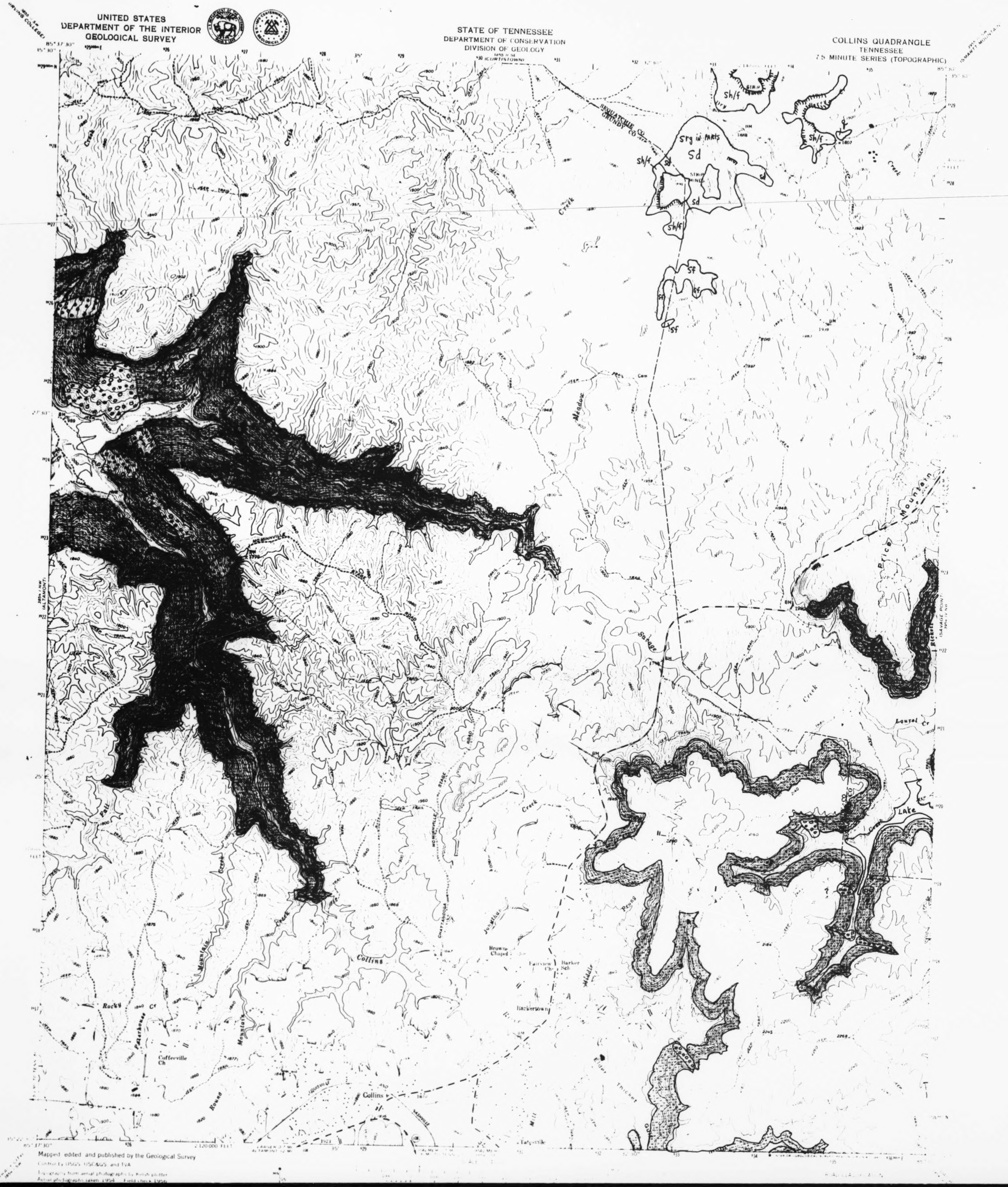
CHATTANOOGA 1° X 2° SHEET





UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
COLLINS QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
SEQUATCHIE CO
GRUNDY CO
Sh/f
Sd
Meadow
Creek
Price Mountain
Savage
Laurel Cr
Lake
Collins
Brown Chapel
Fairview Ch
Barker Sch
Coffeeville Ch
Rocky
Round Mountain
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and TVA
Topography from aerial photographs by Kelsh plotter
Aerial photographs taken 1954. Field check 1956

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and TVA

Topography from aerial photographs by Kelsh plotter
Aerial photographs taken 1954. Field check 1956

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system

1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 3 meters west as shown by dashed corner ticks

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

TENNESSEE
QUADRANGLE LOCATION

COLLINS, TENN.
N3522.5—W8530/7.5

1956

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:20,000 (Black and White) 1973

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE COLLINS, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-4)

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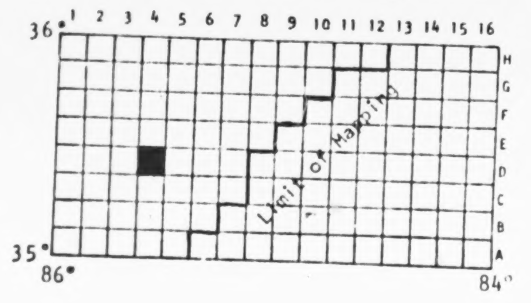
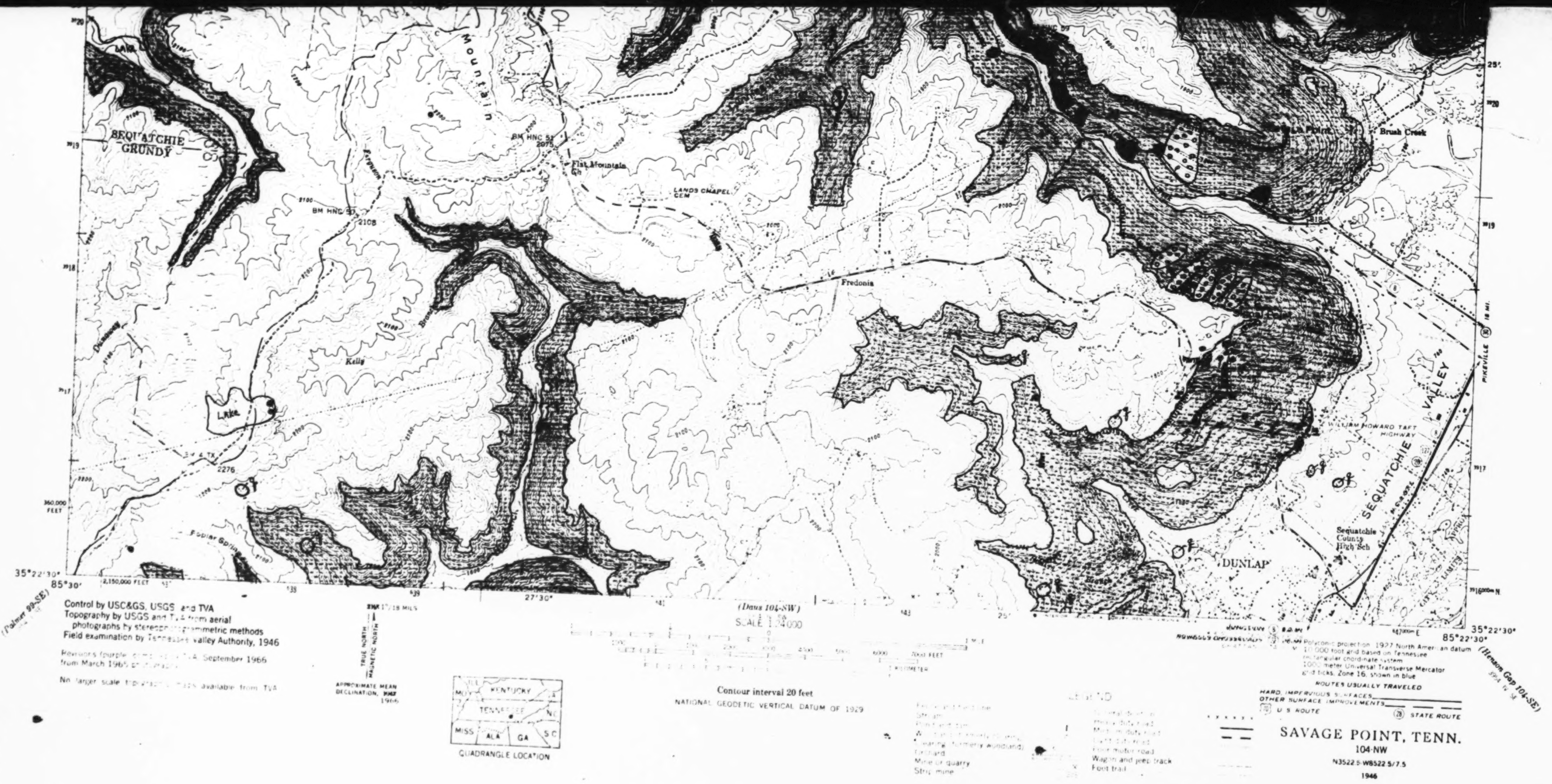
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION
TENNESSEE
SAVAGE POINT QUADRANGLE
104-NW
(Smartt Mountain 103-SW)
35°30'
85°30'
85°22'30"
27'30"
Bonner Knob
Mt Pleasant
Lockout Tower
Lockhart Hill
Yellow Springs
PLATEAU
Nichols Mountain
Long Ridge
BLEDSOE
SEQUATCHIE
SEQUATCHIE
GRUNDY
Brush Creek
Fredonia
Flat Mountain
Lands Chapel Cem
Poplar Spring
DUNLAP
SEQUATCHIE VALLEY
Sequatchie County High Sch
(Palmer 99-SE)
35°22'30"
2,150,000 FEET
360,000 FEET
Control by USC&GS, USGS and TVA
Topography by USGS and TVA from aerial
photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1946
TRUE NORTH
MAGNETIC NORTH
Contour interval 20 feet



Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1974

1:20,000 (Black and White) 1970

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE SAVAGE POINT, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-5)

ACTIVE OR [illegible]ENTLY ACTIVE LANDSLIDE
[illegible]slide composed of earthflow, debris [illegible] and rock slump. Identified from [illegible] records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

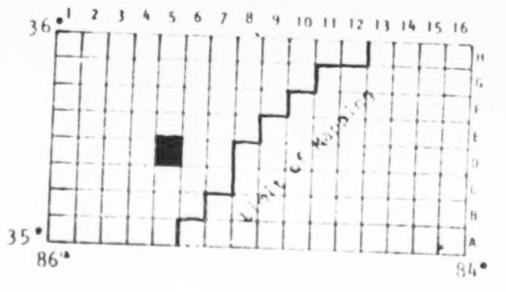
Quarries
q quarry site

Gravel pits
g site of gravel pit

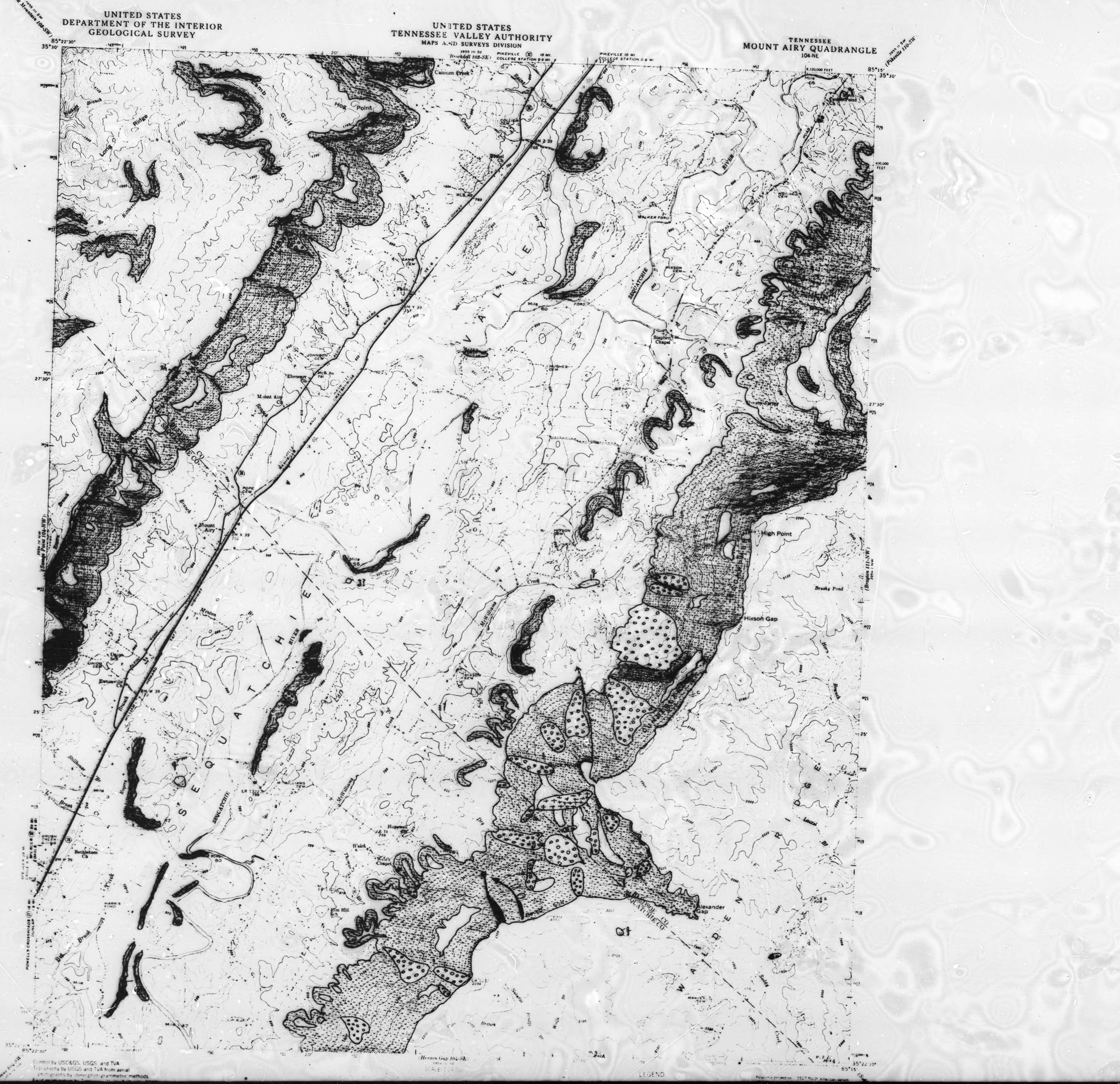
Slides in man-made features

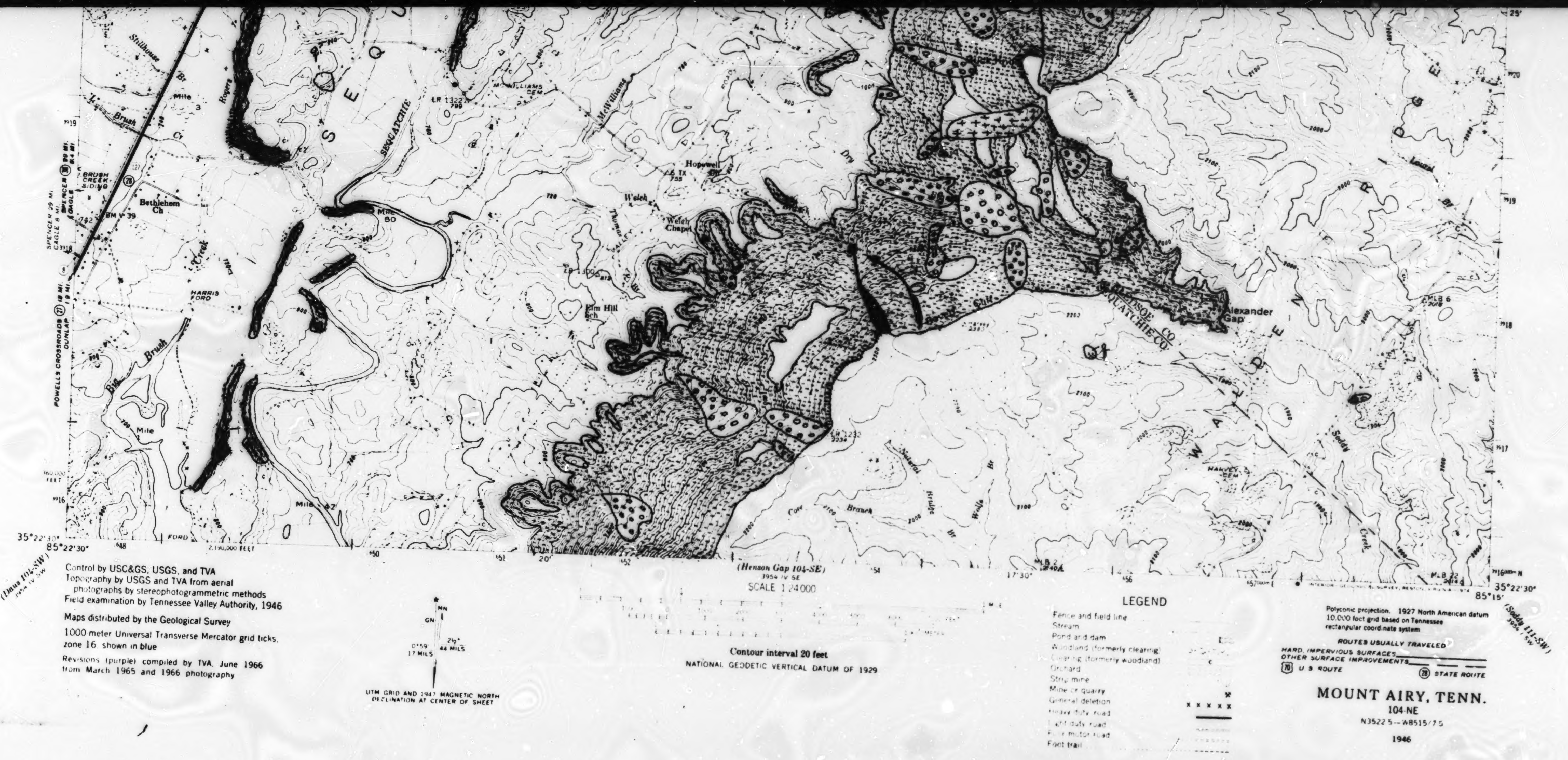
af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



best copy available


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION
TENNESSEE
MOUNT AIRY QUADRANGLE
104-NE
85°22'30"
35°30'
85°15'
27'30"
Cannon Creek
Hog Point
Long Ridge
Mount Airy
High Point
Hixson Gap
Brushy Pond
Alexander Gap
Bethlehem Ch
Hopewell
SEQUATCHIE
VALLEY
WALDEN RIDGE
LEGEND



Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1974
1:20,000 (Black and White) 1970

Photointerpretation and field check 1981

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LANDSLIDES AND RELATED FEATURES

OF THE MOUNT AIRY, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-6)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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rbd	burning
rbs	sludge

Quarries

q	quarry site

Gravel pits

g	site of gravel pit

Slides in man-made features

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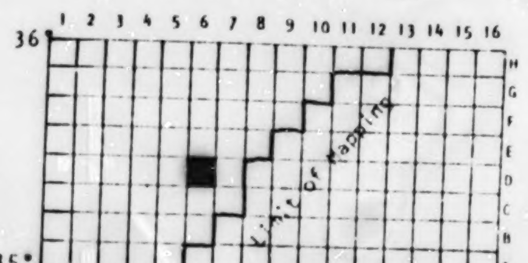
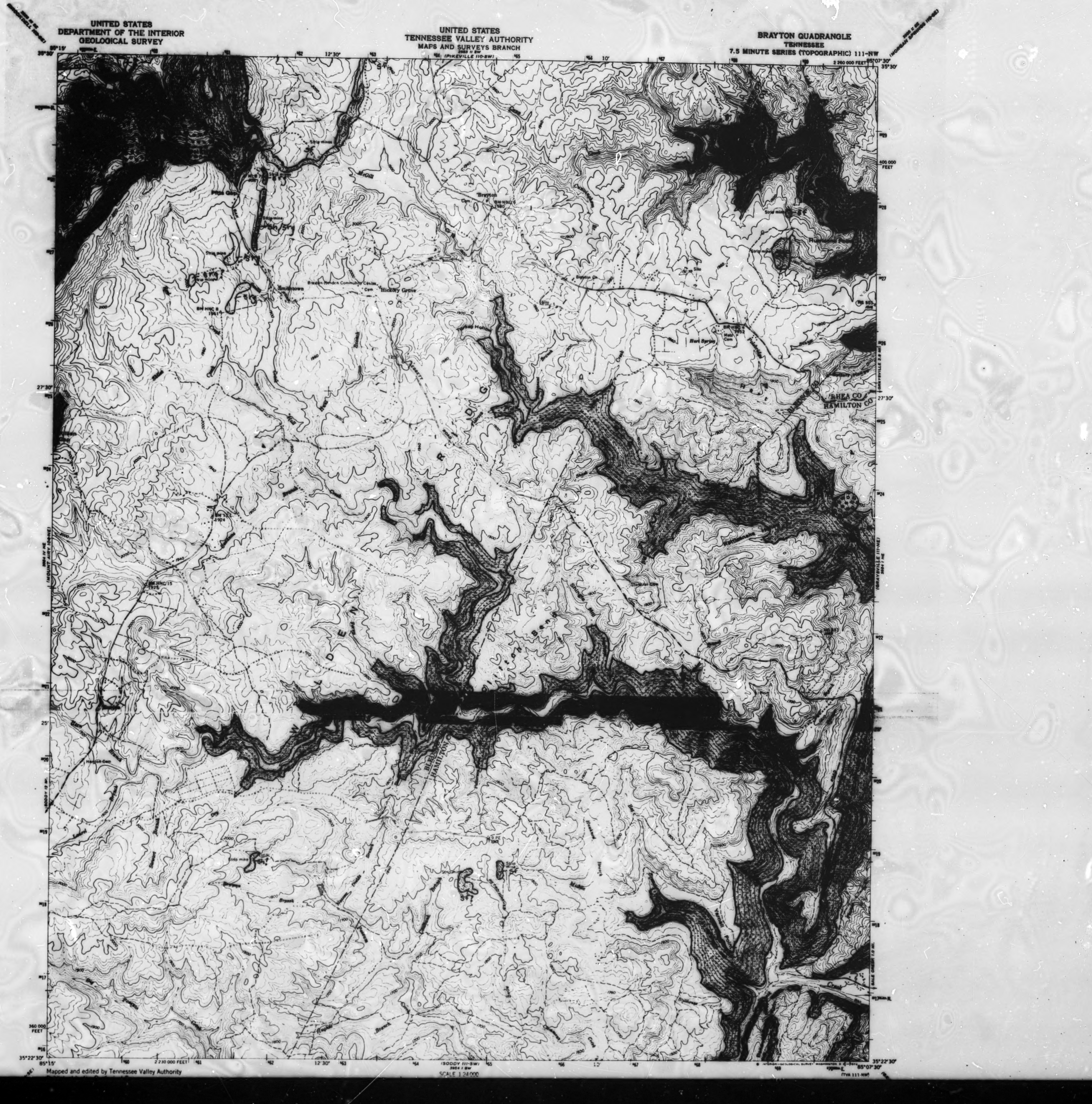
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET




UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
(PIKEVILLE 110-SW)
BRAYTON QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 111-NW
85°15'
35°30'
12'30"
10'
85°07'30"
35°22'30"
2 260 000 FEET
2 230 000 FEET
360 000 FEET
Brayton
Hickory Grove
RHEA CO
HAMILTON CO
(SODDY 111-SW)
SCALE 1:24 000
Mapped and edited by Tennessee Valley Authority
(TVA 111-NW)

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USC&GS, USGS, and TVA

Revised by TVA in 1970 by photogrammetric methods using aerial photographs taken 1968 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1972

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system
1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1972 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U. S. Route — State Route

BRAYTON, TENN.
N3522.5-W8507.5/7.5
1972

Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1974

Photointerpretation and field check 1981

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LANDSLIDES AND RELATED FEATURES

OF THE BRAYTON, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (D-7)

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- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
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- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- c — quarry site

Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANOOGA 1° by 2° SHEET

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
MORRISON QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 92-SW
35°37'30"
85°52'30"
WARREN CO
COFFEE CO
Shady Grove
Old Well Crossing
Black Pond
Morrison
Summitville
Summitville Mtn
Bryan Mill
Fountain Grove Ch
Duck Pond
Pleasant Knoll Church
Hickory Grove Church
Grassy Pond
THE BARRENS
TENNESSEE VALLEY DIVIDE
Bark Camp Fork
Wesley Chapel
COFFEE CO
GRUNDY CO
35°30'
86°00'
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USC&GS, USGS, and TVA
Topography by multiplex methods from aerial
ROAD CLASSIFICATION

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

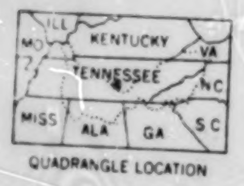
Control by USC&GS, USGS, and TVA

Topography by multiplex methods from aerial photographs taken 1950. Field examination by TVA, 1956

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system

1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1956 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET



QUADRANGLE LOCATION

MORRISON, TENN.
N3530-W8552.5/7.5
1956

Landslides and related features interpreted from aerial photographs:

1:40,000 (Black and White) 1979

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE MORRISON, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-1)

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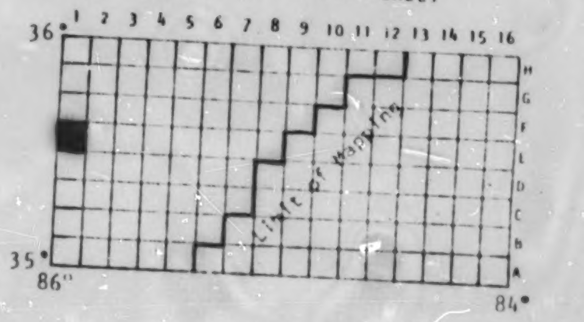

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
(MC MINNVILLE)
VIOLA QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
Crawford
Branch
CREEK
Brookside Sch
Branch
Rocky Ch
Viola Sch
Viola
White Hall Ch
Mt Zion
Beech Hollow
Hollow
Hollow
WARREN CO
GRUNDY CO
Chestnut Grove Ch
Eultz Cove
Northcutts Cove Sch
Northcutts Cove
(LANE HOLLOW)
47'30"
35°30'
85°52'30"
Mapped, edited, and published by the Geological Survey
Control by USGS
Topography from aerial photographs by Kelsh plotter
Aerial photographs taken 1950. Field check 1955
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt

Mapped, edited, and published by the Geological Survey

Control by USGS

Topography from aerial photographs by Kelsh plotter
Aerial photographs taken 1950. Field check 1955

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system

Unchecked elevations are shown in brown

APPROXIMATE MEAN DECLINATION 1955

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy duty — Light duty
Medium duty — Unimproved dirt
U.S. Route — State Route

TENNESSEE
QUADRANGLE LOCATION

VIOLA, TENN

1955

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1973
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

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LANDSLIDES AND RELATED FEATURES

OF THE VIOLA, TENN. QUADRANGLE

by
Roger L. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-2)

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SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

Gravel pits

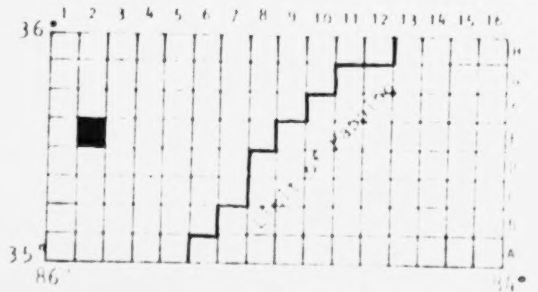
- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

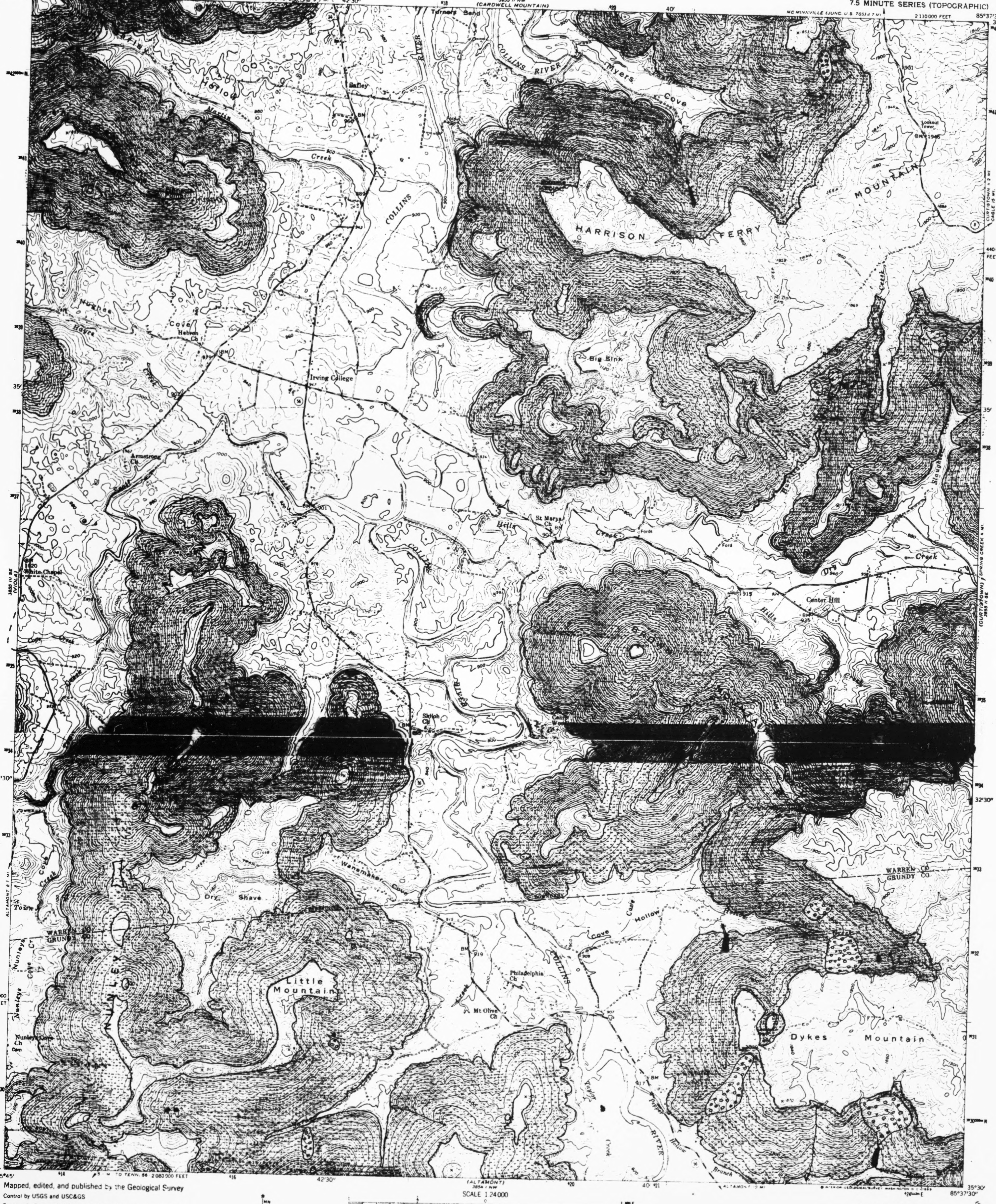
CHATTANOOGA 1°x 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

IRVING COLLEGE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1951. Field check 1960

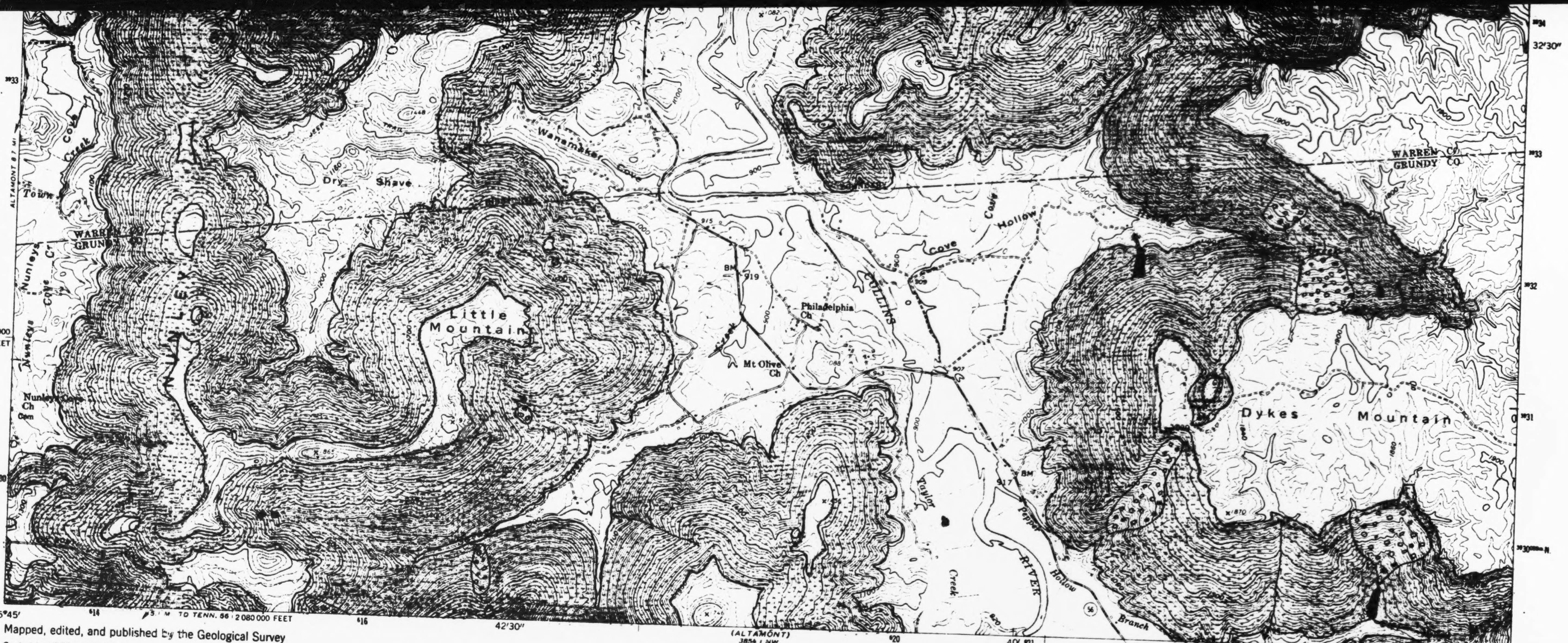
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks

SCALE 1:24000

CONTOUR INTERVAL 20 FEET

ROAD CLASSIFICATION

Medium-duty — Light-duty —
Unimproved dirt - - - - - - -



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1951. Field check 1960

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

UTM GRID AND 1960 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Medium-duty — Light-duty —
Unimproved dirt - - - - -
State Route

TENNESSEE
QUADRANGLE LOCATION

IRVING COLLEGE, TENN.
N3530—W8537.5/7.5
1960

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1973
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE IRVING COLLEGE, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-3)

NOTE

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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ss	hilltop removed
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sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

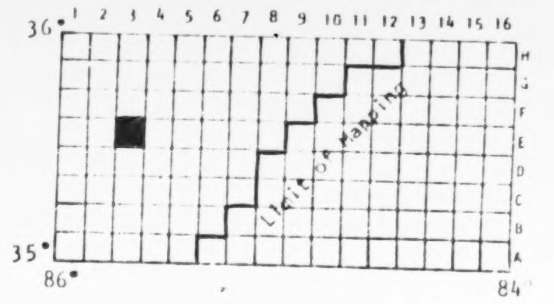
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

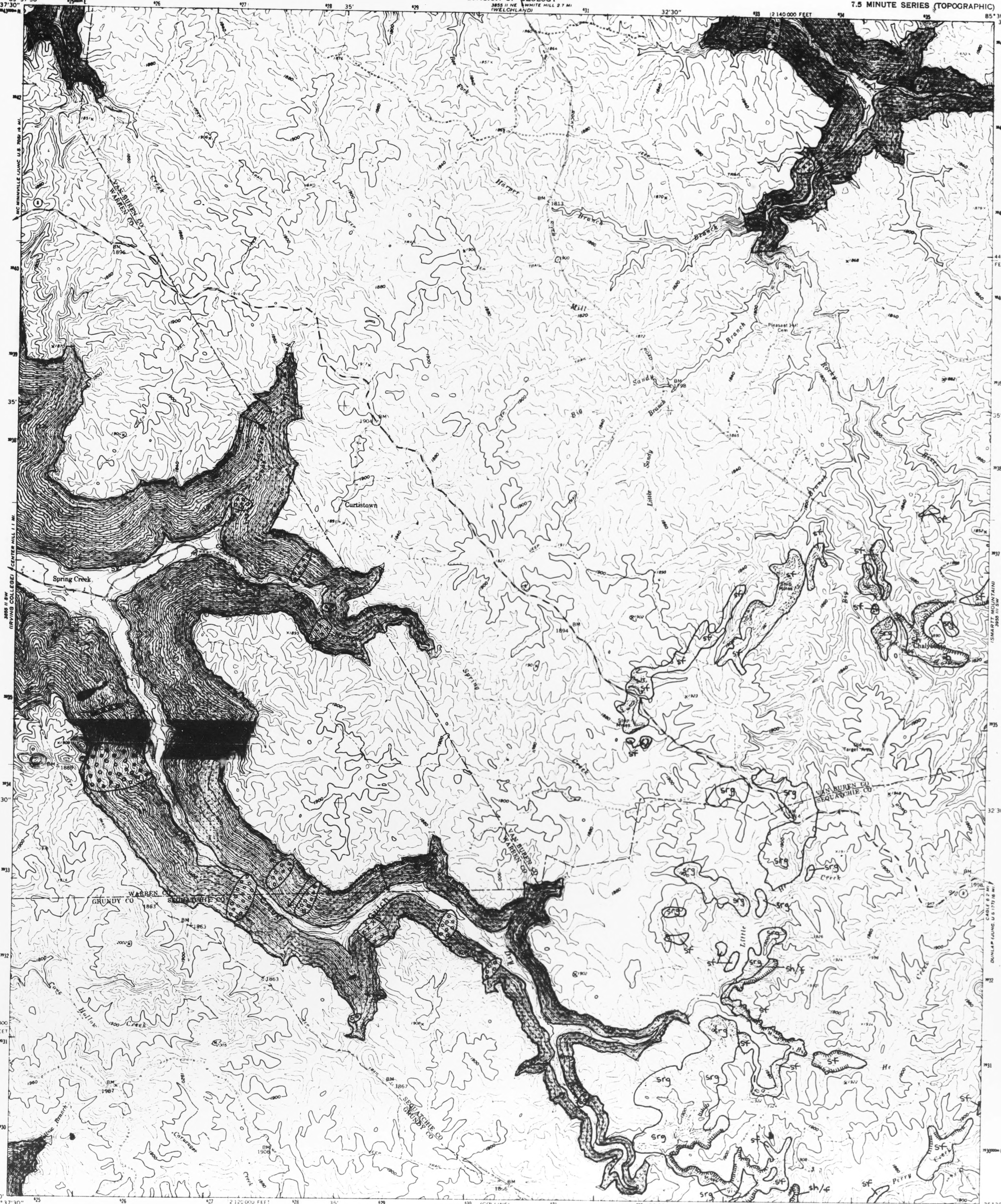
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

CURTISTOWN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

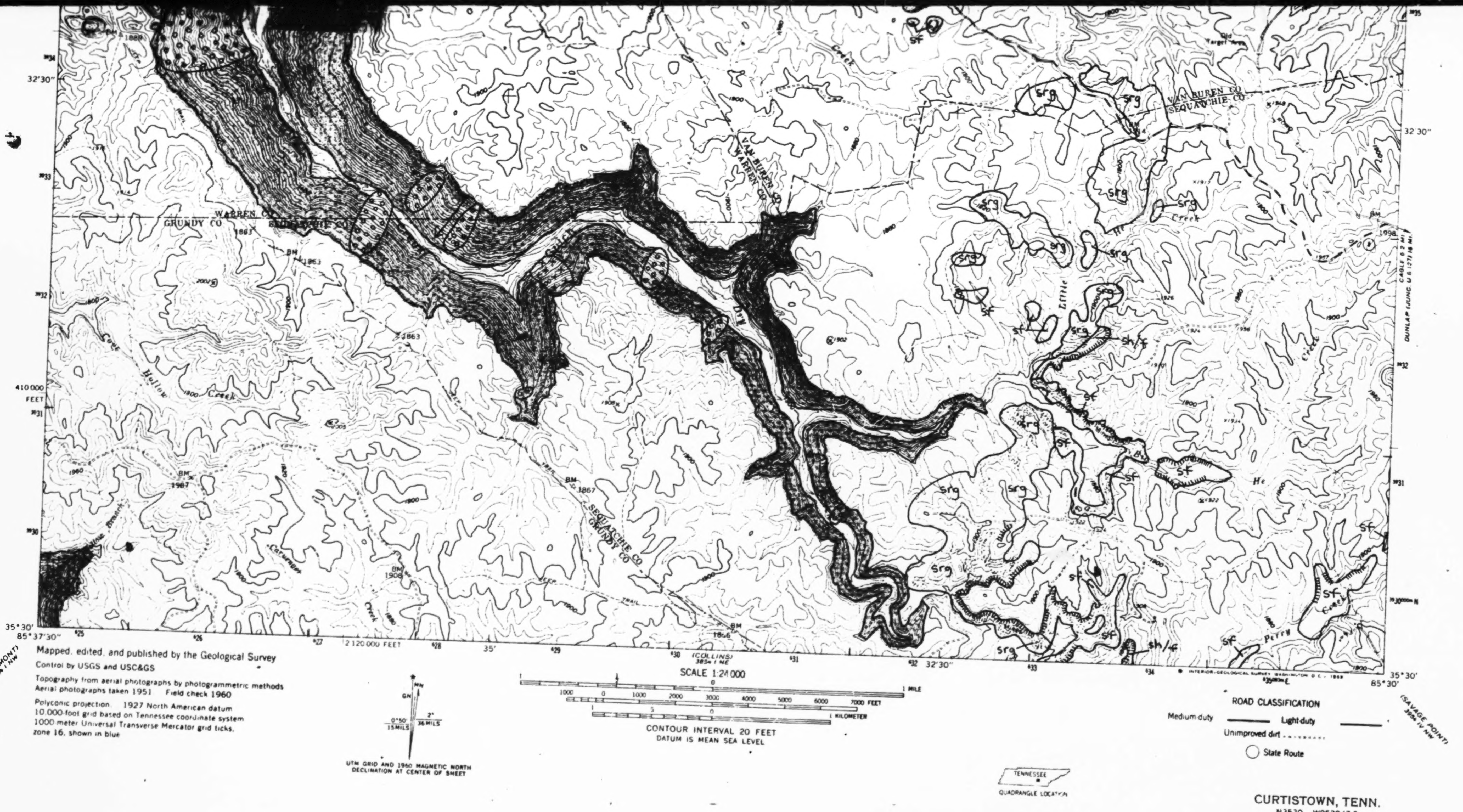


Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1951. Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks.

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Medium duty — Light-duty
Unimproved dirt
State Route



Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:20,000 (Black and White) 1979
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1976
Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE CURTISTOWN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-4)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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NOTE

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Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

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srg	reclaimed by grading
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sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

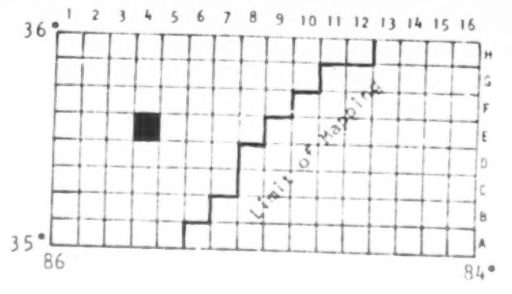
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



best copy available

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

SMARTT MOUNTAIN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 103-SW

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

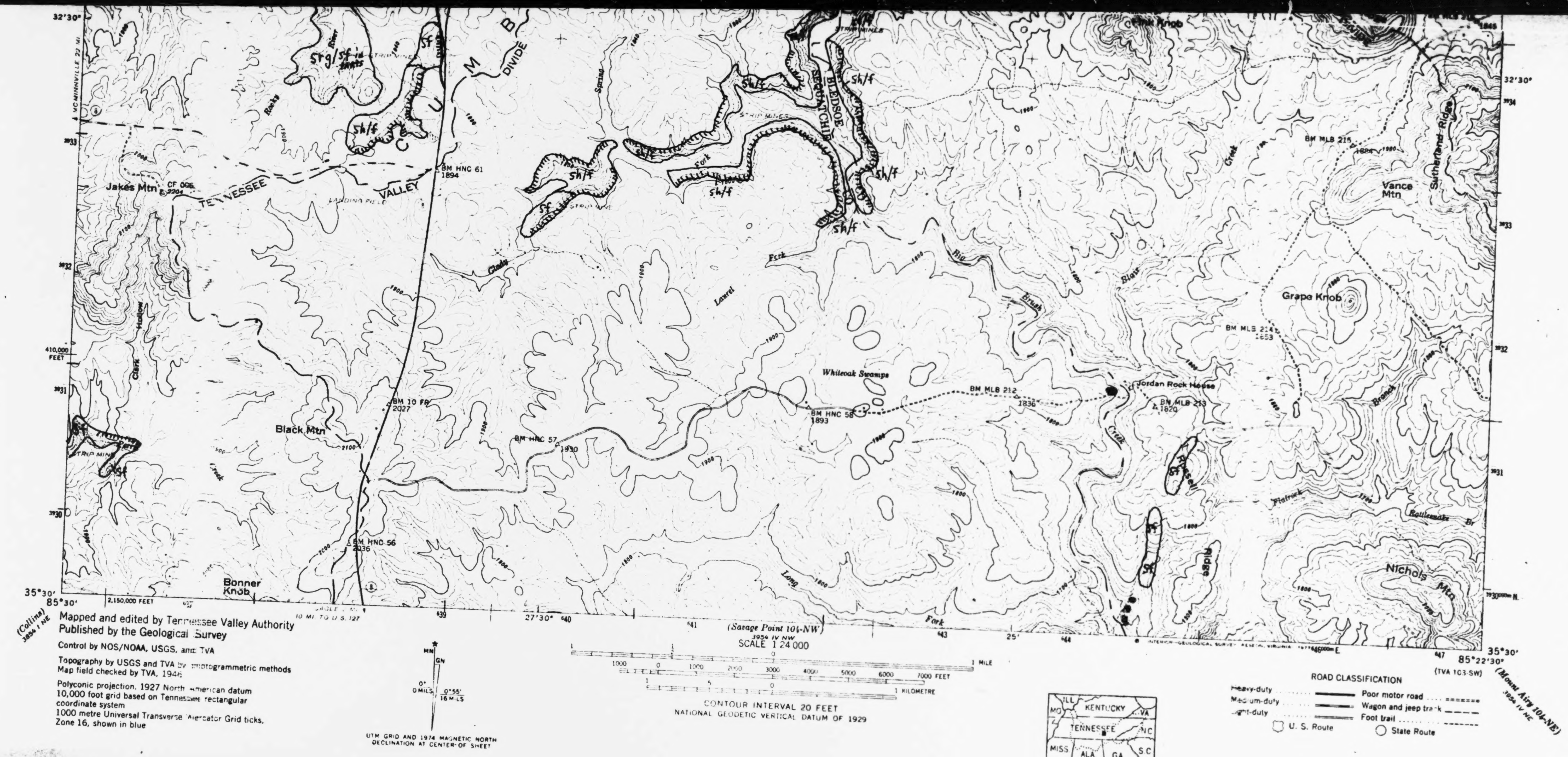
Control by NOS/NOAA, USGS, and TVA

Topography by USGS and TVA by photogrammetric methods

(Savage Point 104-NW)
3954 IV NW
SCALE 1:24 000

ROAD CLASSIFICATION
Heavy-duty
Poor motor road

(TVA 103-SW)



SMARTT MOUNTAIN, TENN.
N3530—W8522.5/7.5

1946
PHOTOREVISED 1974

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976
1:40,000 (Black and White) 1979
1:20,000 (Black and White) 1970

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE SMARTT MOUNTAIN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-5)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad beaches; modification by excavation and fill may lead to local landslides.

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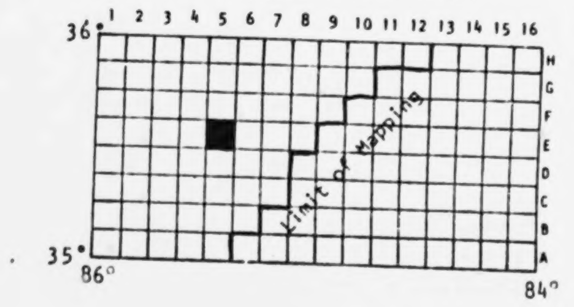
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

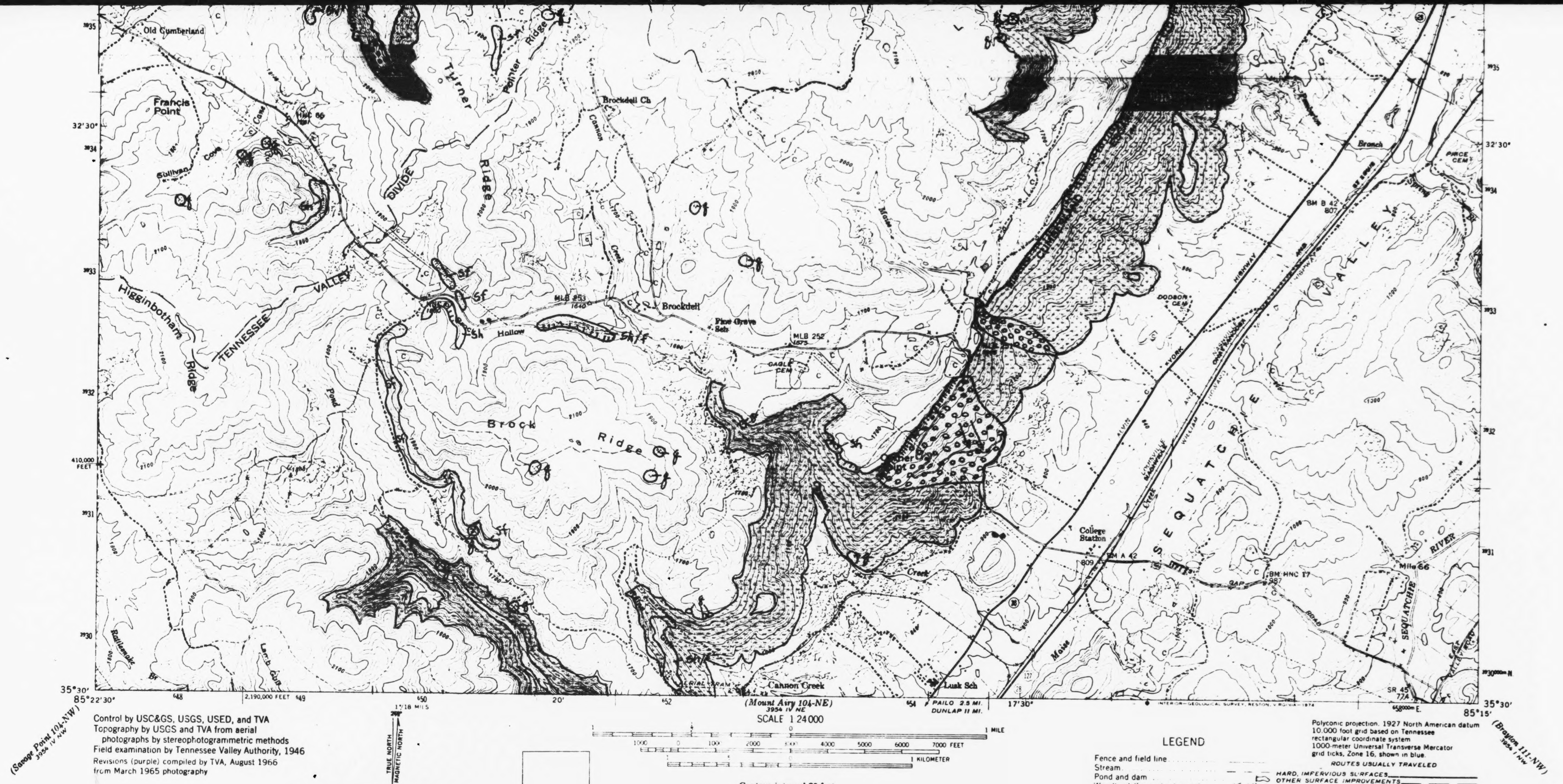
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS DIVISION

TENNESSEE
BROCKDELL QUADRANGLE
103-SE

Control by USC&GS, USGS, USED, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods

SCALE 1:24 000

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system



35°30′ 85°22′30″ — 20′ — 17′30″ — 35°30′ 85°15′

Control by USC&GS, USGS, USED, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority, 1946
Revisions (purple) compiled by TVA, August 1966 from March 1965 photography

APPROXIMATE MEAN DECLINATION, 1966

Larger scale topographic maps available

SCALE 1:24000

Contour interval 20 feet
NATIONAL GEODETIC VERTICAL DATUM OF 1929

LEGEND

Fence and field line
Stream
Pond and dam
Woodland (formerly clearing)
Clearing (formerly woodland)
General deletions
Strip mine
Mine or quarry
Heavy-duty road
Light-duty road
Poor motor road
Wagon and jeep track
Foot trail

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks, Zone 16, shown in blue.

ROUTES USUALLY TRAVELED
HARD, IMPERVIOUS SURFACES
OTHER SURFACE IMPROVEMENTS
U S ROUTE — STATE ROUTE

BROCKDELL, TENN.
103-SE
N3530-W8515/7.5
1946

LANDSLIDES AND RELATED FEATURES

OF THE BROCKDELL, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-6)

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1975
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Garman, K.R., Millcl, R.C., 1967
Geologic map of the Brockdell quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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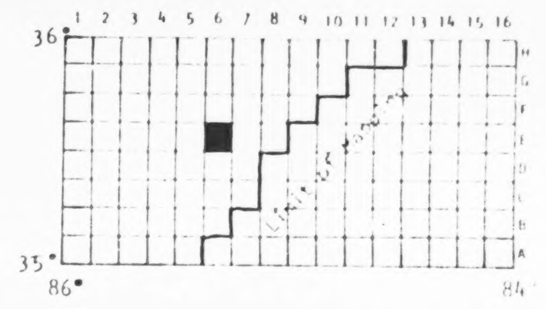
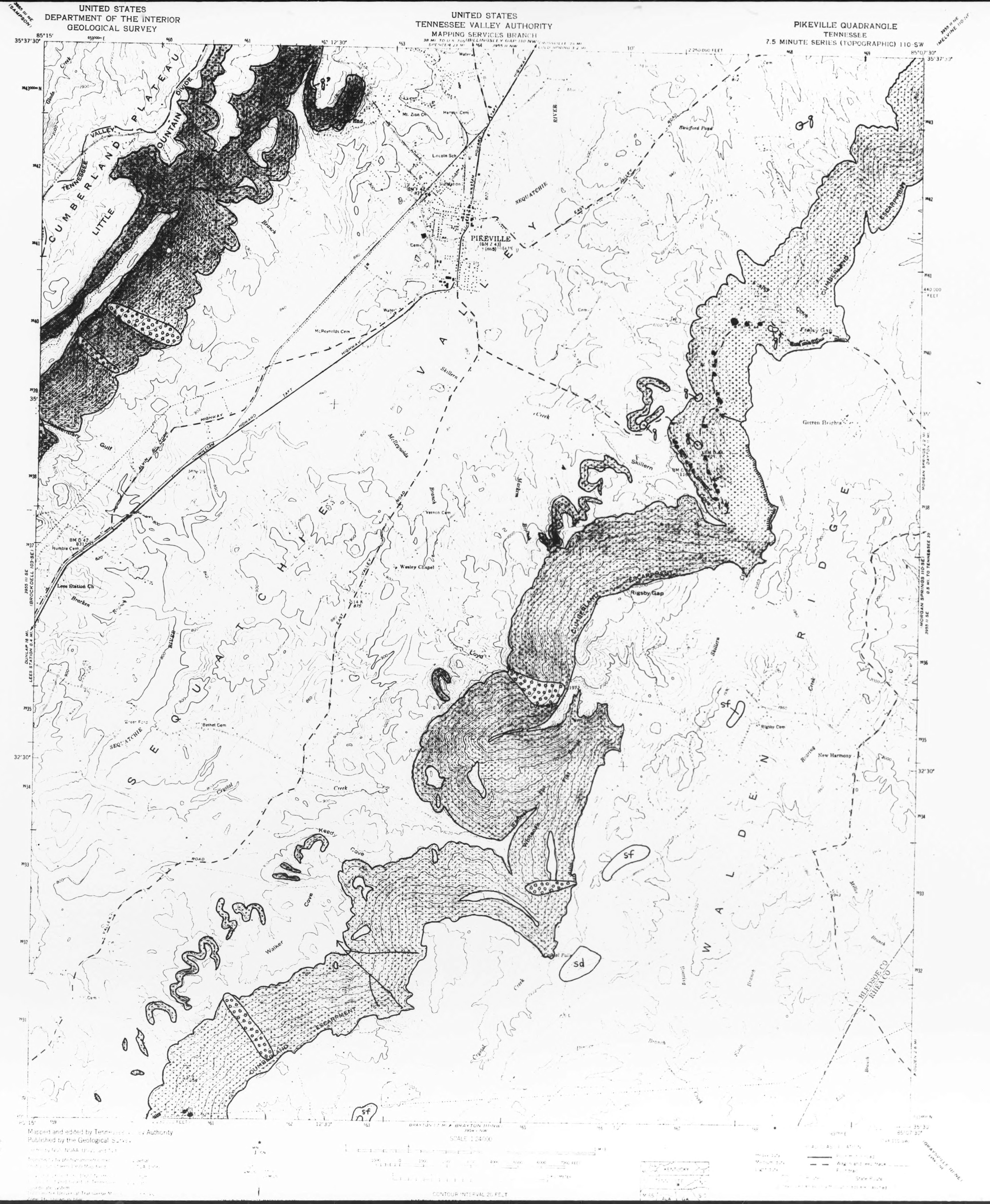
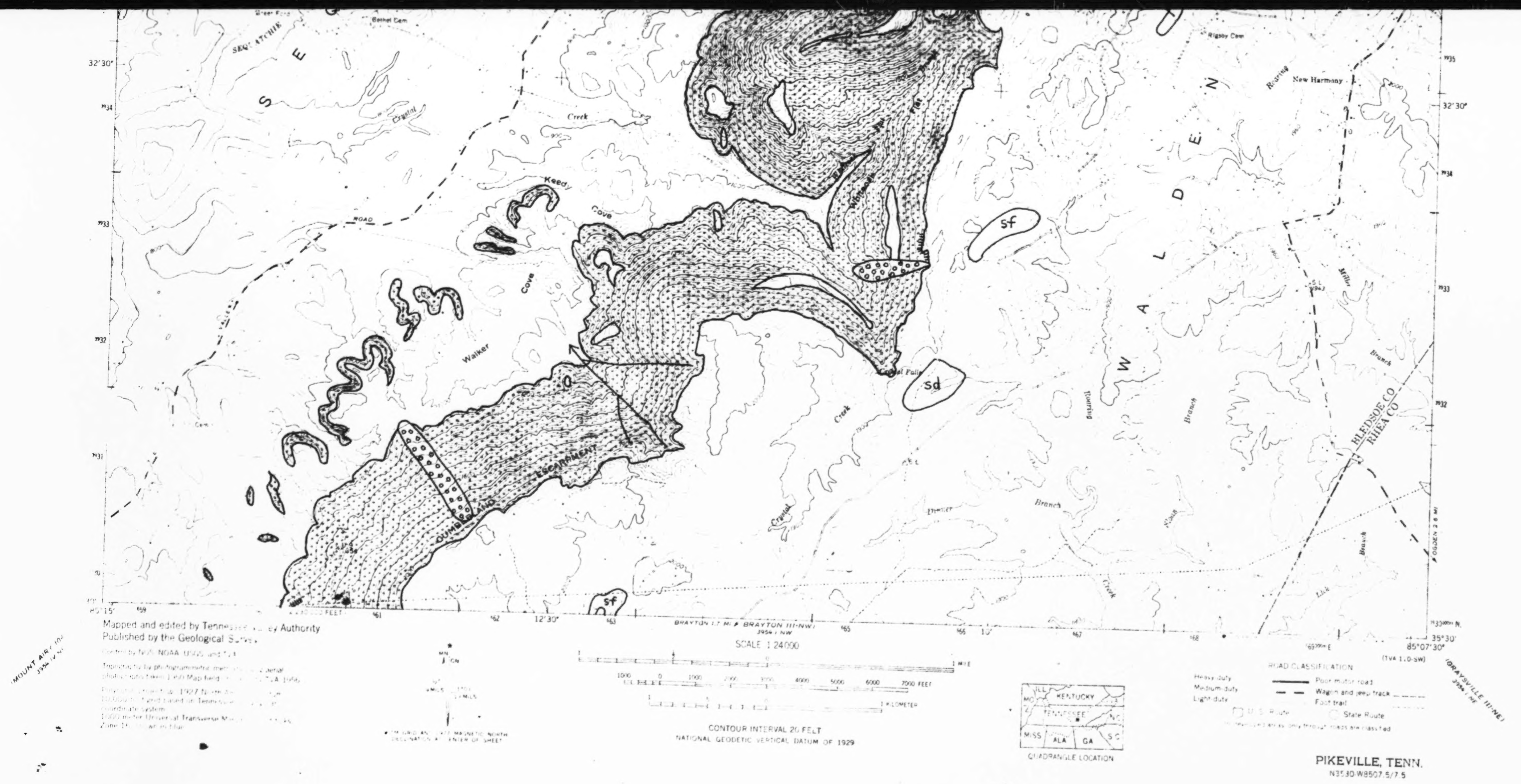
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET




UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH
PIKEVILLE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
CUMBERLAND PLATEAU
LITTLE
PIKEVILLE
SEQUATCHIE VALLEY
WALDEN RIDGE
CUMBERLAND ESCARPMENT
Rigsby Gap
Wesley Chapel
Lees Station Ch
New Harmony
Kenny Cove
Walker Cove
sf
sd
CONTOUR INTERVAL 20 FEET



Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Milici, R.C., and Finlayson, C.P., 1967
Geologic map of the Pikeville quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE PIKEVILLE, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-7)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs, not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

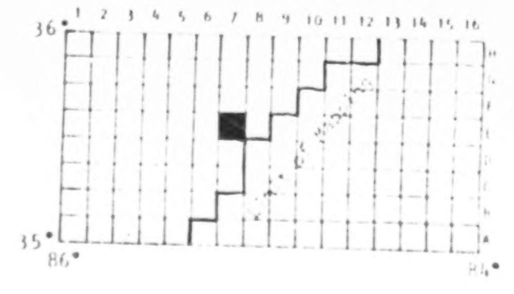
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



best copy available

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

MORGAN SPRINGS QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 110-SE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system

ROAD CLASSIFICATION
State Route

Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1975

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Swingle, George D., 1963
Geologic map of the Morgan Springs quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE MORGAN SPRINGS, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (E-8)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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AREAS LEAST PRONE TO LANDSLIDES
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NOTE
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- r — identified on aerial photographs; not classified in field check
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- rbs — sludge

Quarries

- quarry site

Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
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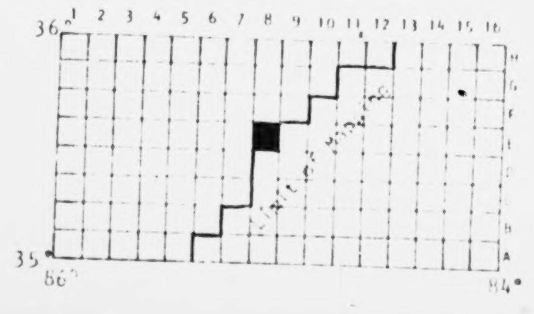
- a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

CENTERTOWN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by Kelsh plotter methods
Aerial photographs taken 1950. Field check 1953

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

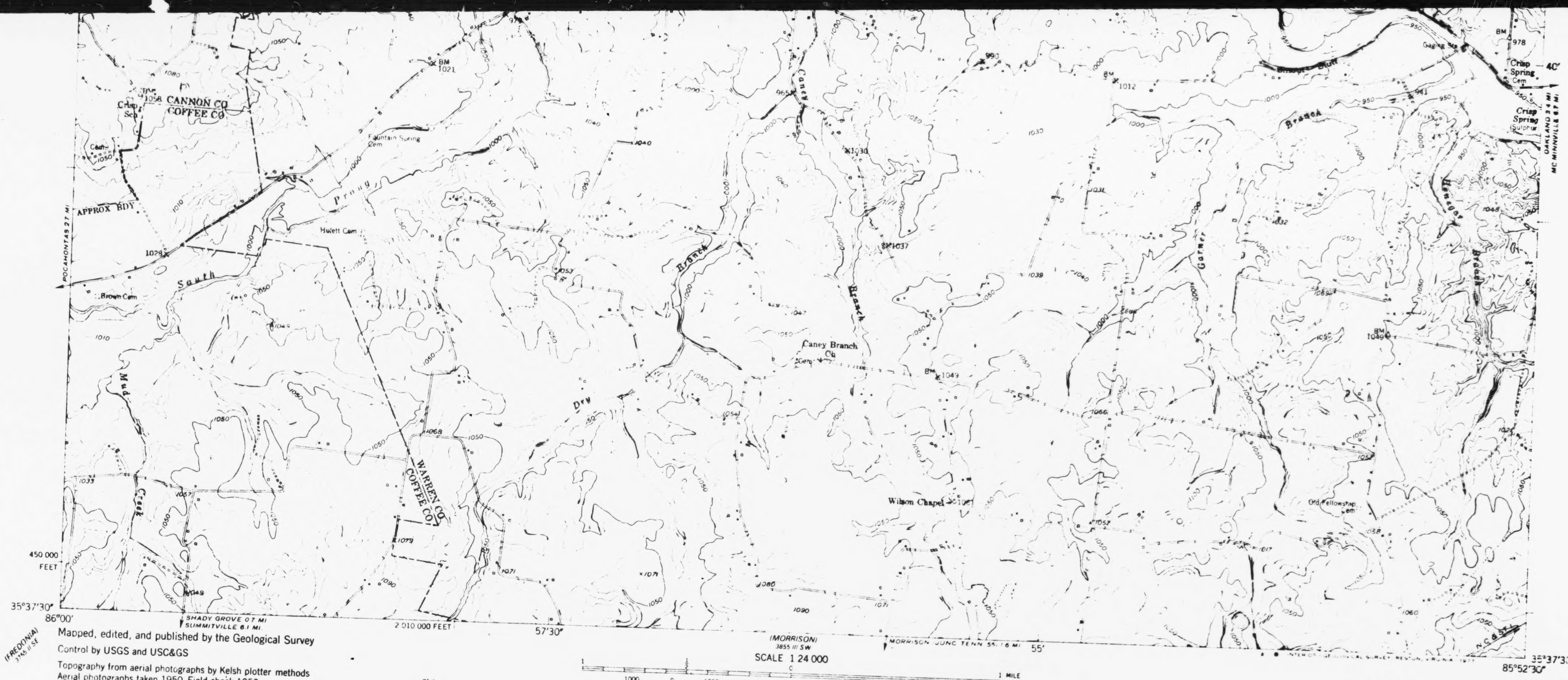
ROAD CLASSIFICATION

Heavy duty — Light duty

Medium duty — Unimproved dirt

U. S. Route — State Route

CENTERTOWN, TENN.



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by Kelsh plotter methods
Aerial photographs taken 1950. Field check 1953

Polyconic projection 1927 North American datum
10,000-foot grid based on Tennessee coordinate system

(FREDONIA) 3755 II SE

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1953

(MORRISON) 3855 III SW

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

Heavy-duty — 4 LANE 6 LANE — Light-duty
Medium-duty — 4 LANE 6 LANE — Unimproved dirt
U S Route — State Route

(VIOLA) 3855 III SE

TENNESSEE
QUADRANGLE LOCATION

CENTERTOWN, TENN.

N3537.5–W8552.5/7.5

1953

Landslides and related features interpreted from aerial photographs:

1:40,000 (Black and White) 1979

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Hart, Thomas A., 1972
Geologic map of the Centertown quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE CENTERTOWN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-131[illegible] (F-1)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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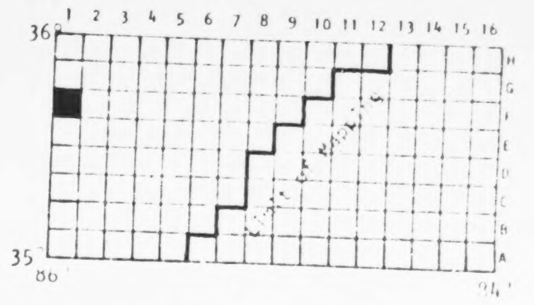
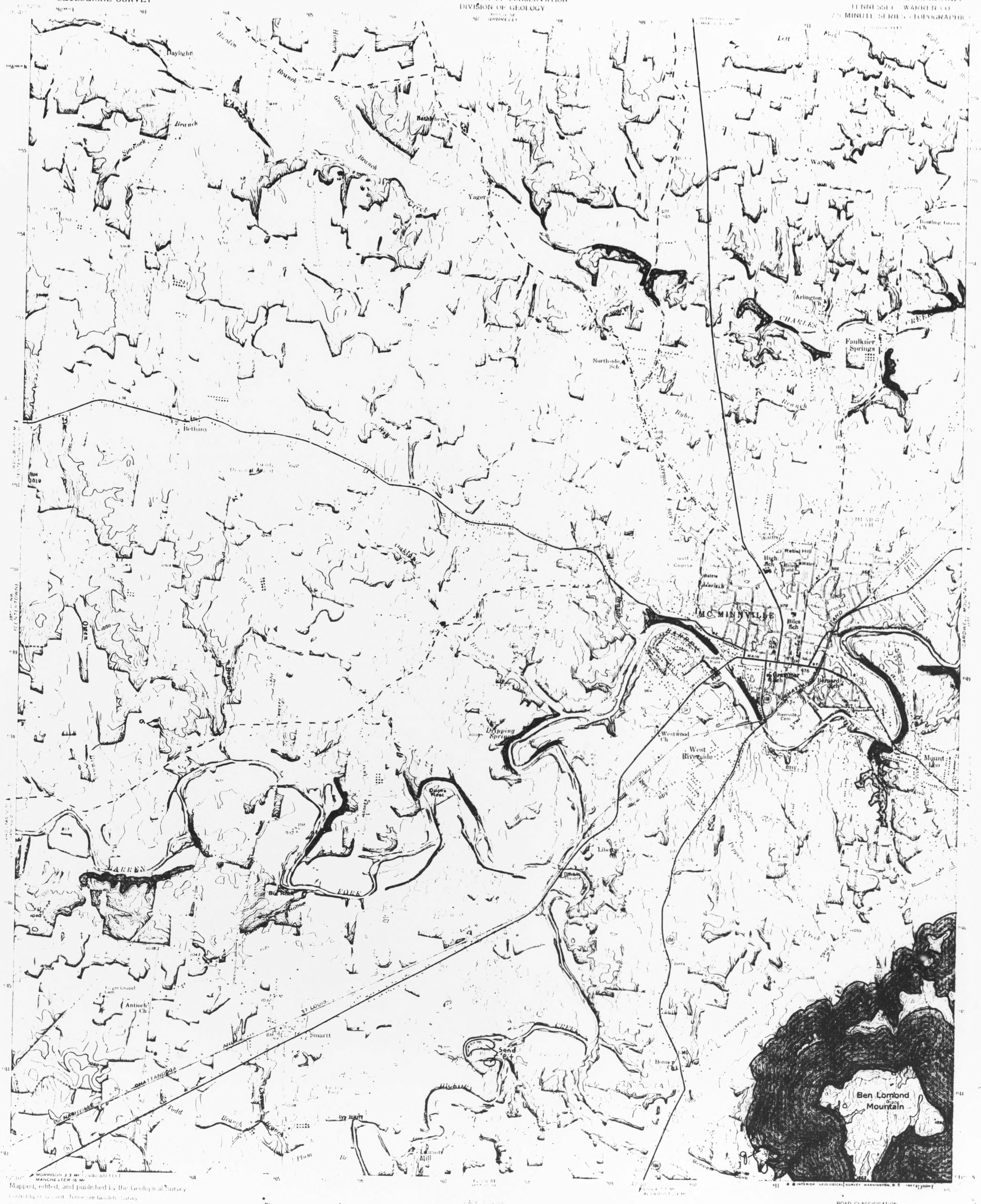
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

MC MINNVILLE QUADRANGLE
TENNESSEE - WARREN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

ROAD CLASSIFICATION

Heavy duty — Light duty
Medium duty — Unimproved dirt
U. S. Route — State Route

Mapped, edited, and published by the Geological Survey

ROAD CLASSIFICATION

Heavy duty — Light-duty
Medium duty — Unimproved dirt
U S Route — State Route

TENNESSEE
QUADRANGLE LOCATION

MC MINNVILLE, TENN.
1953

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES
OF THE McMINNVILLE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-2)

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Gravel pits

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Slides in man-made features

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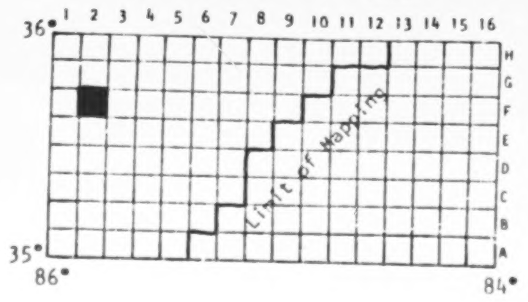
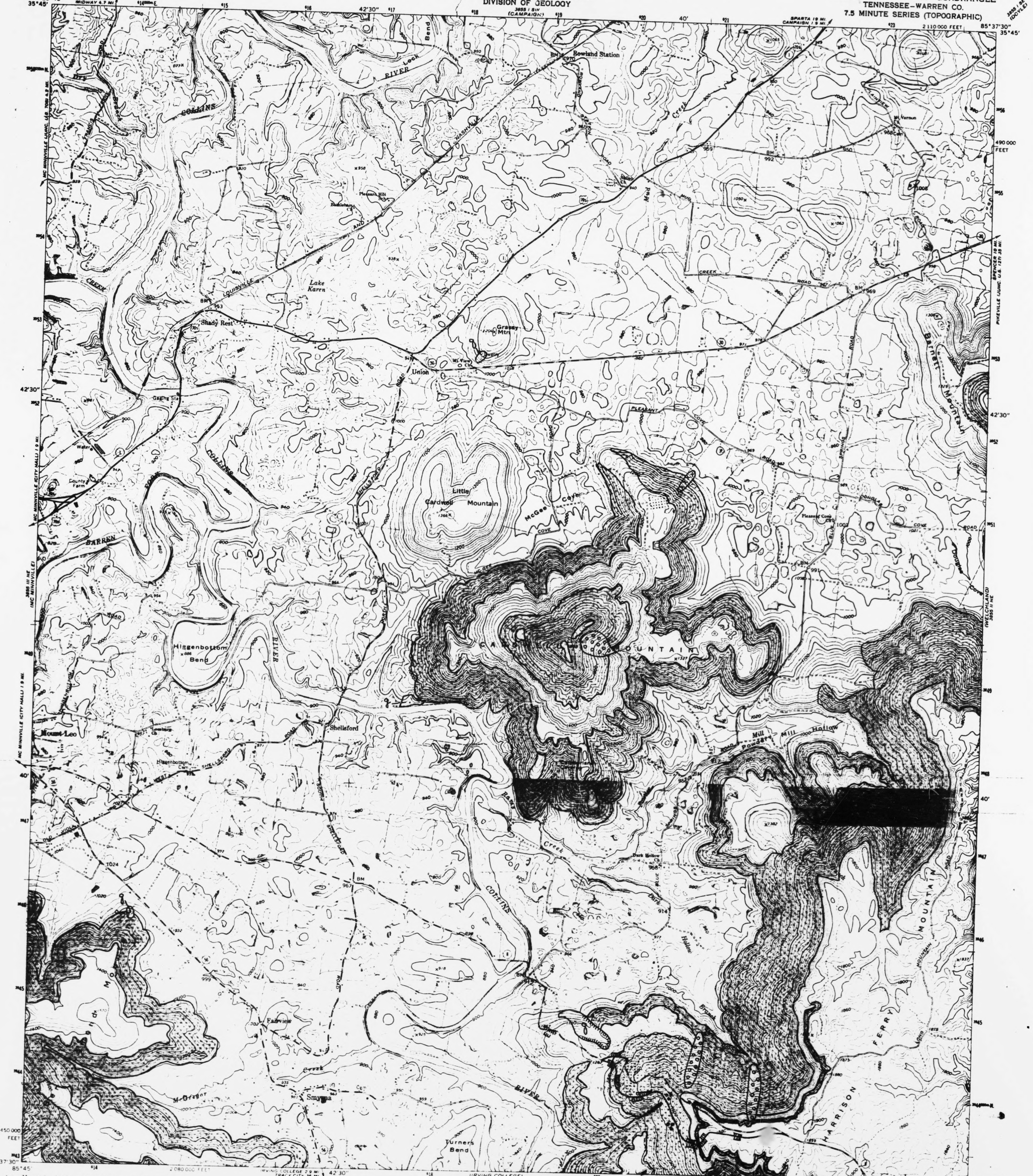
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

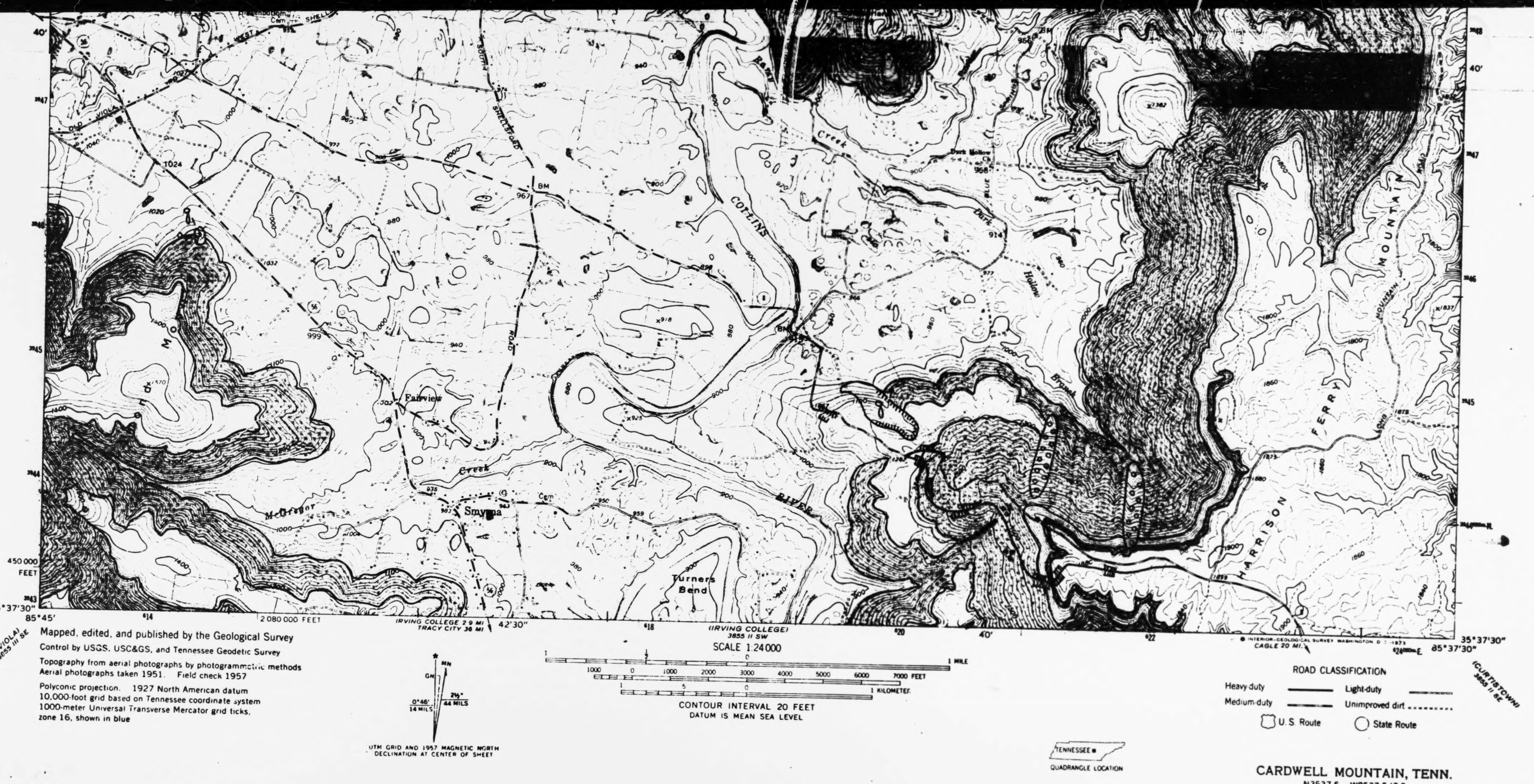
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

CARDWELL MOUNTAIN QUADRANGLE
TENNESSEE–WARREN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and Tennessee Geodetic Survey
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1951 Field check 1957
Polyconic projection 1927 North American datum
10,000 foot grid based on Tennessee coordinate system

ROAD CLASSIFICATION
Heavy duty Light-duty



CARDWELL MOUNTAIN, TENN.
N3537.5—W8537.5/7.5

1957

LANDSLIDES AND RELATED FEATURES

OF THE CARDWELL MOUNTAIN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-3)

Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1975

1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Statler, Anthony T., 1975

Geologic map of the Cardwell Mountain quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

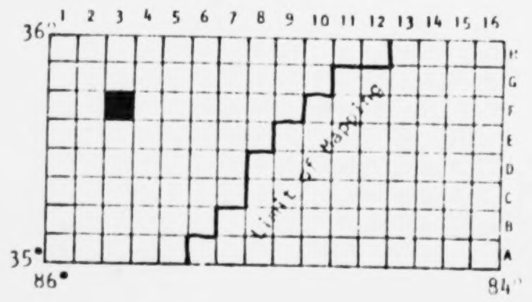
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET

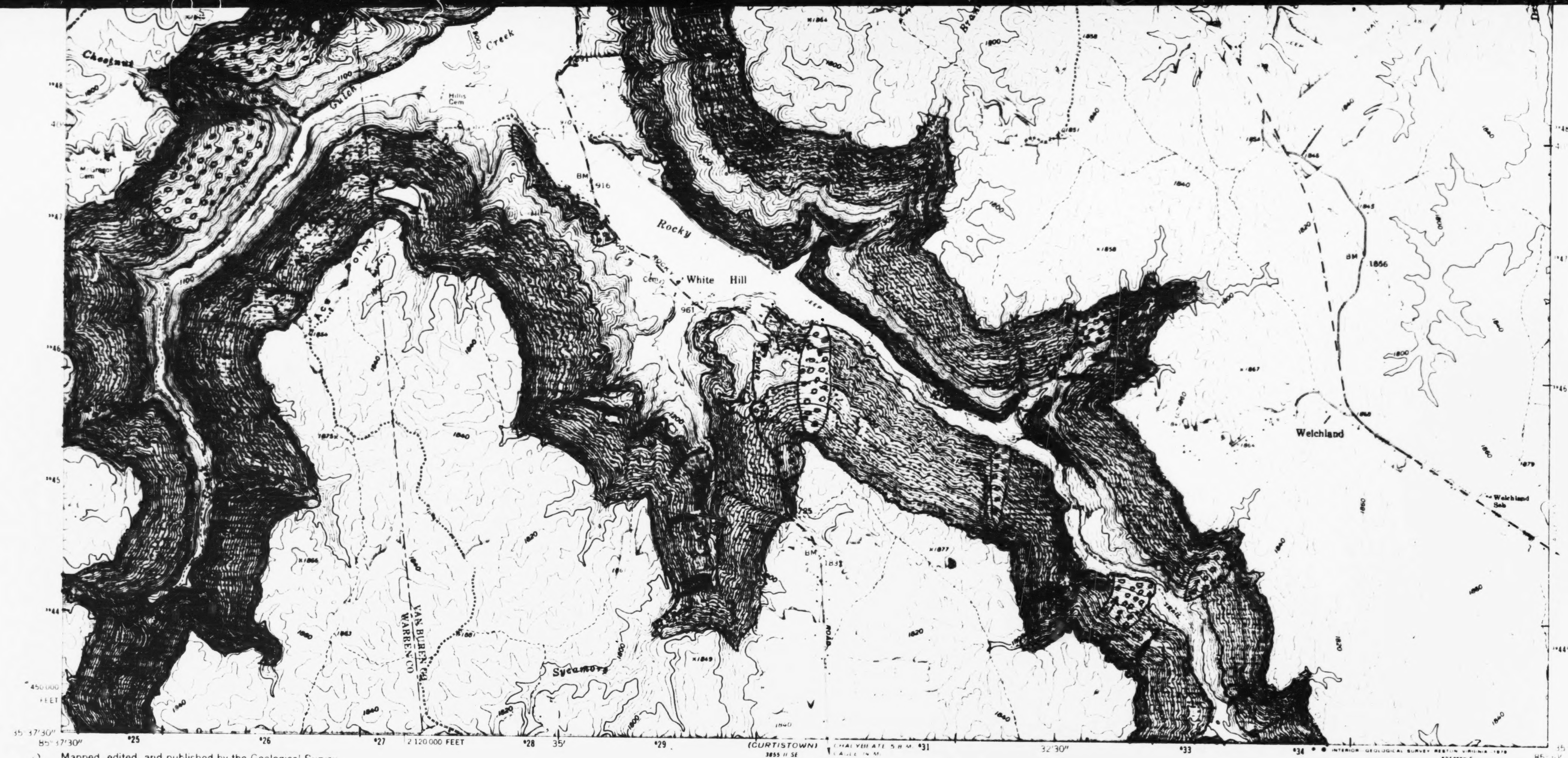


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

WELCHLAND QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1951. Field check 1960

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system
1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Medium duty — Light duty
Unimproved dirt
State Route

WELCHLAND, TENN.
N3537.5—W8530/7.5
1960

LANDSLIDES AND RELATED FEATURES

OF THE WELCHLAND, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-4)

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1975
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Garman, Keith R., 1969
Geologic map of the Welchland quadrangle, Tennessee.
Tennessee Department of Conservation,
Division of Geology, scale 1:24,000.

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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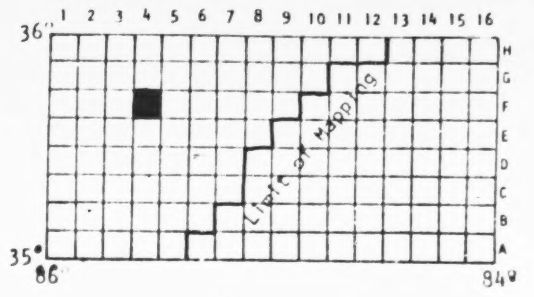
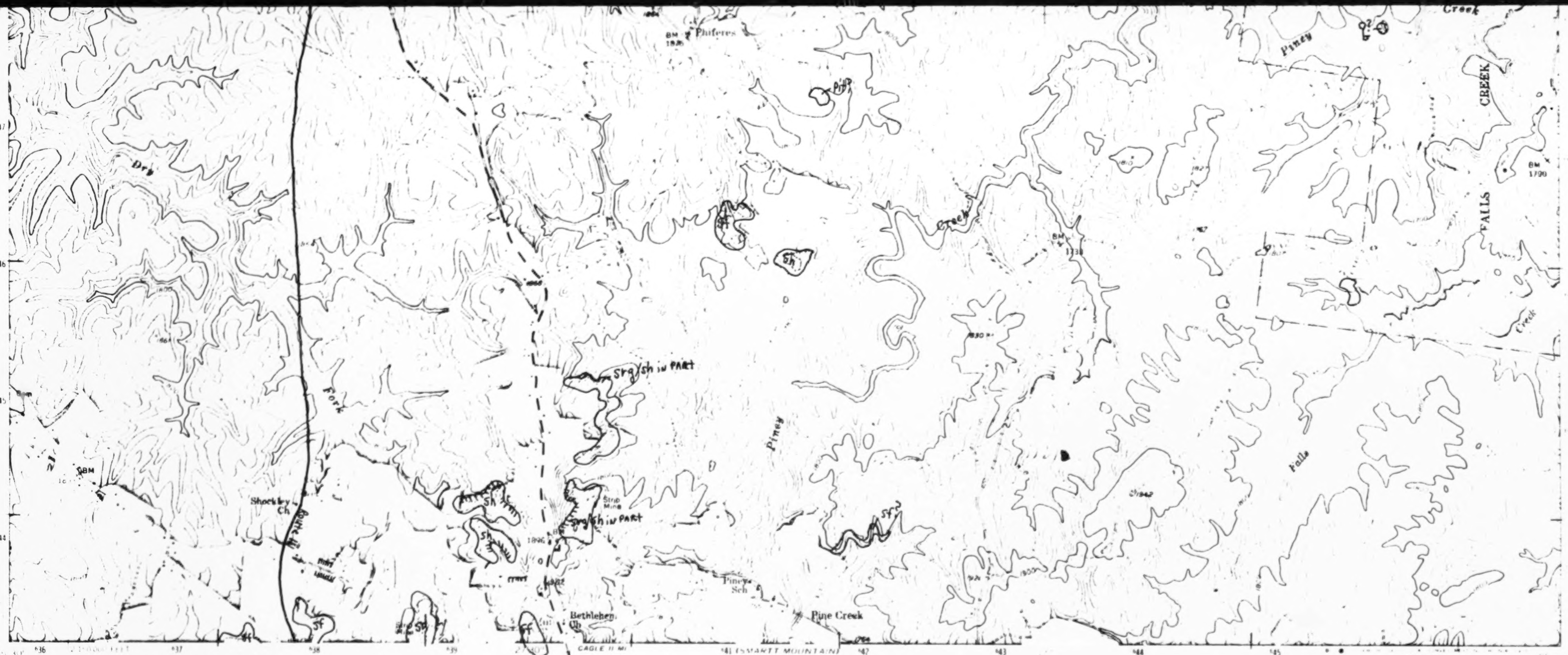


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

SPENCER QUADRANGLE
TENNESSEE – VAN BUREN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

SPENCER, TENN

1954

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE SPENCER, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-5)

NOTE

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g	site of gravel pit

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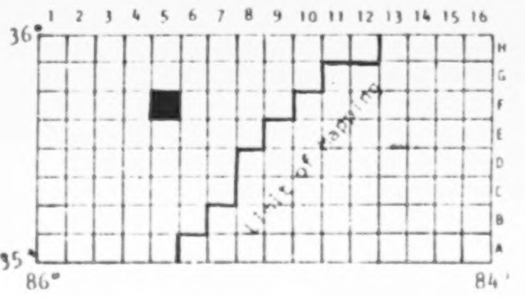
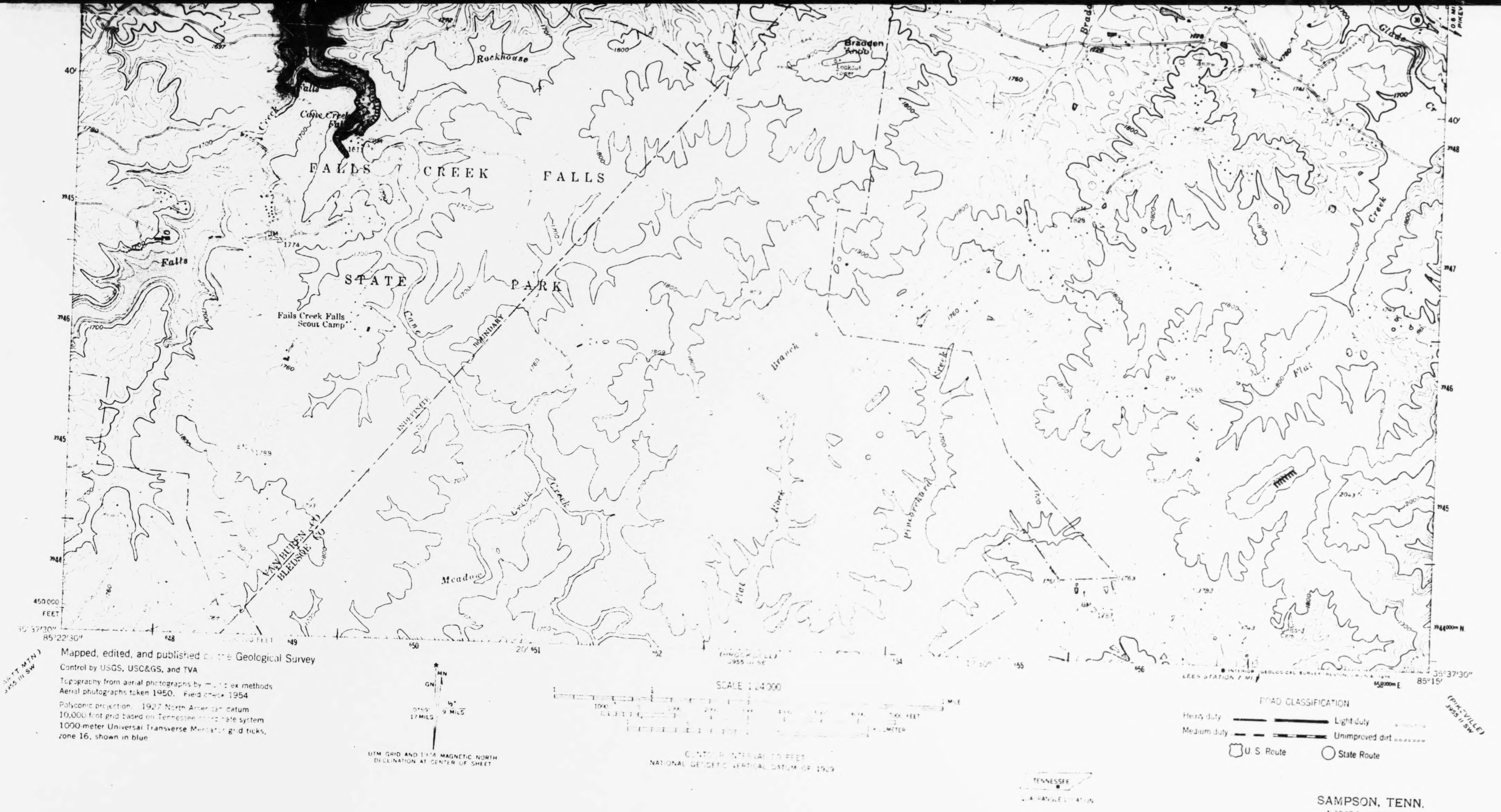
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
SAMPSON QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
85°22'30"
35°45'
Salzer Mtn
Long
Branch
Bald Knob
Jack Br
Branch
Johnnie
Mt Della Ch
New Martin Sch
Mt View Ch
Harrison Gulf
VAN BUREN CO
BLEDSOE CO
Kelog Knob
Bradden Knob
Bradden
Sampson
Rockhouse
Cane Creek
Falls
FALLS CREEK FALLS
STATE PARK
Falls Creek Falls Scout Camp
BLEDSOE STATE FOREST
Flat
Meadow
42'30"
40'
sh
shf-srg
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and TVA
Aerial photographs taken 1950. Field check 1954
Polyconic projection. 1927 North American datum



Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1976
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

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Additional information from:

Millcl, Robert C., 1969
Geologic map of the Sampson quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE SAMPSON, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-6)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
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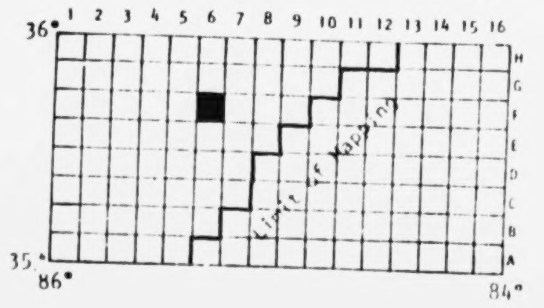


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

BILLINGSLEY GAP QUADRANGLE
TENNESSEE-BLEDSOE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC) 110-NW

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Topography by photogrammetric methods using aerial photographs taken 1952. Map field checked by TVA, 1956

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular

SCALE 1 24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 20 FEET

ROAD CLASSIFICATION

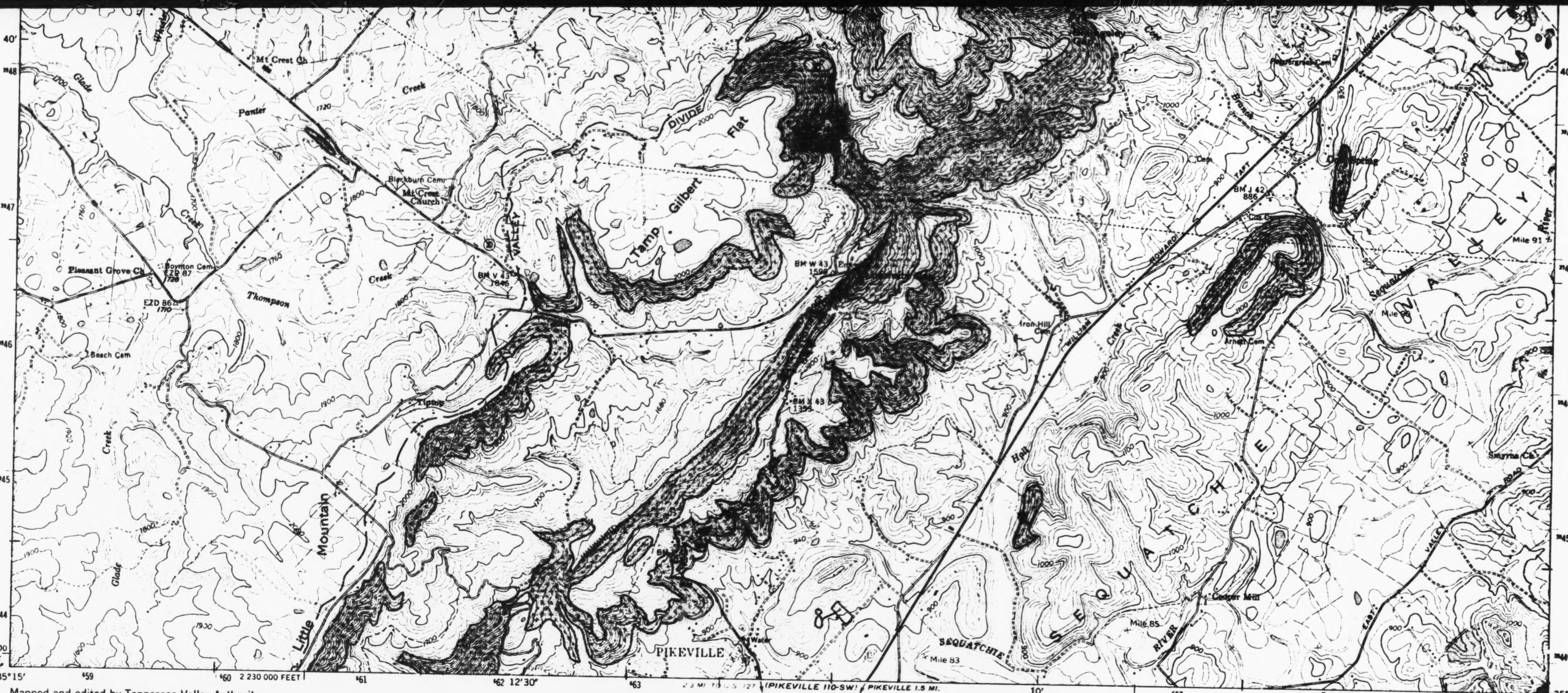
Heavy-duty
Medium-duty
Light-duty
Poor motor road
Wagon and jeep track
Foot trail
U. S. Route
State Route

In developed areas, only through roads are classified

KENTUCKY
TENNESSEE
MISS
ALA
GA
NC
SC
VA
ILL
MO

(BROCKDELL 103-SE)
3955 II SE

(MORGAN SPRINGS 110-SE)
3955 II SE



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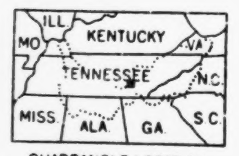
SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U. S. Route — State Route
In developed areas, only through roads are classified

BILLINGSLEY GAP, TENN.
N3537.5—W8507.5/7.5

1956
PHOTOREVISED 1976

LANDSLIDES AND RELATED FEATURES

OF THE BILLINGSLEY GAP, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318(F-7)

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Coker, A.E., Millci, R.C., and Finlayson, C.P., 1967
Geologic map of the Billingsley Gap quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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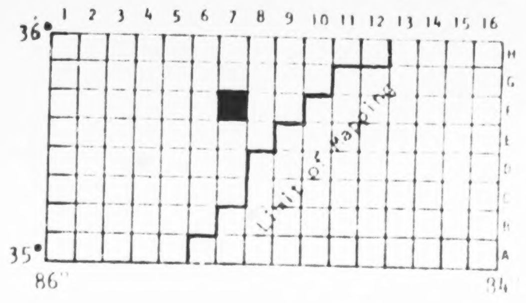
Quarries
- q — quarry site

Gravel pits
- q — site of gravel pit

Slides in man-made features
- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



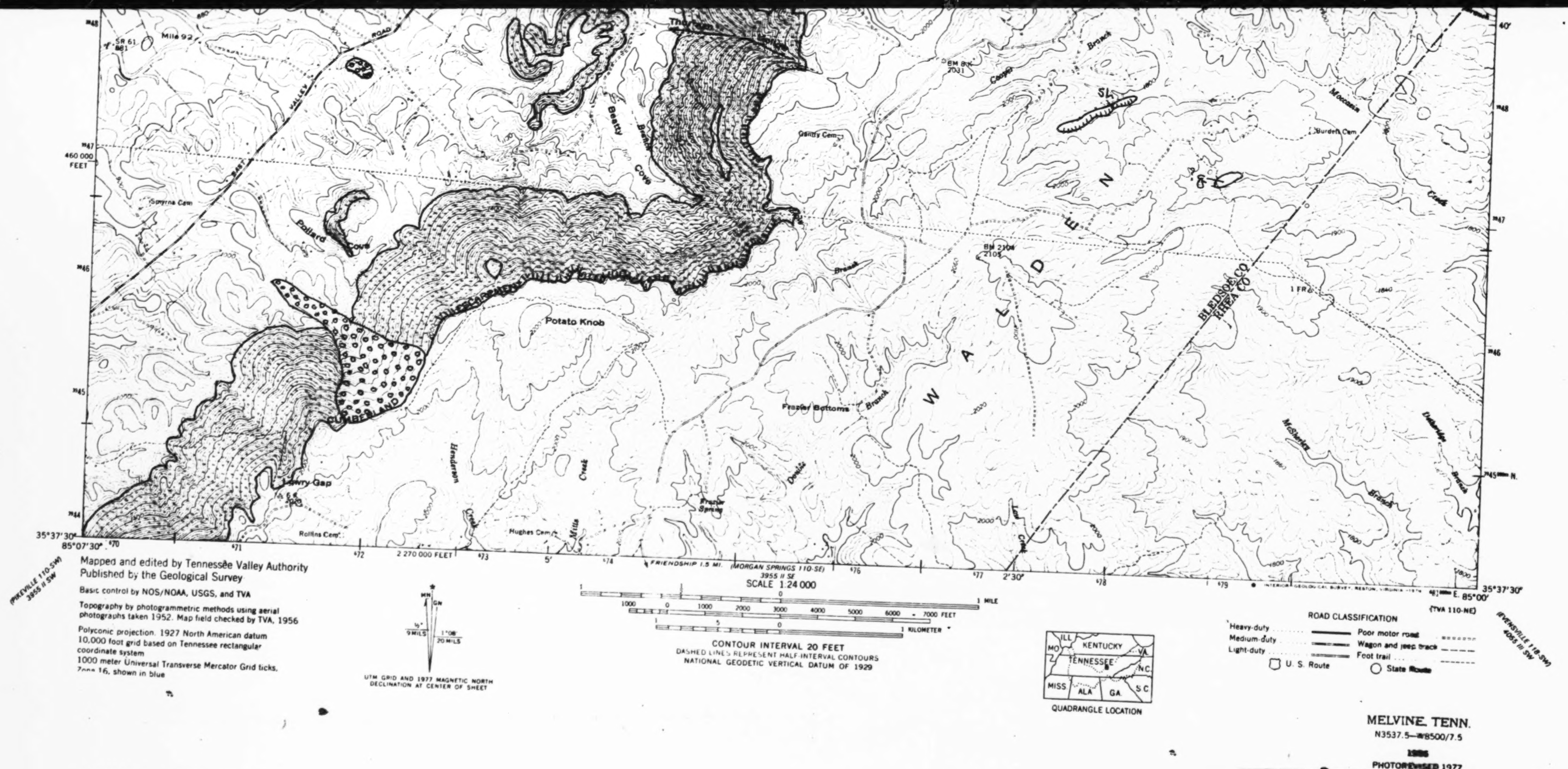
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

MELVINE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 110-NE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

SCALE 1:24 000



LANDSLIDES AND RELATED FEATURES

OF THE MELVINE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318:(F-8)

Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Millci, R.C., Coker, A.E., 1967
Geologic map of the Melvine quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leavin sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

Information shown is intended as a general guide to ground contions as of the date of field check. Additional landslides and rockfalls should be anticipated in all map units. The map unit depicts the dominant condition in the area delineated and variations in slope stability may occur at any point in the unit. This map is suitable for general planning purposes and as a supplement to more detailed studies for site selection. The map cannot be used as a substitute for detailed geologic and engineering investigations to establish design and construction criteria of specific sites. Some symbols may not appear on this map because the description is applicable to a series of maps.

MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

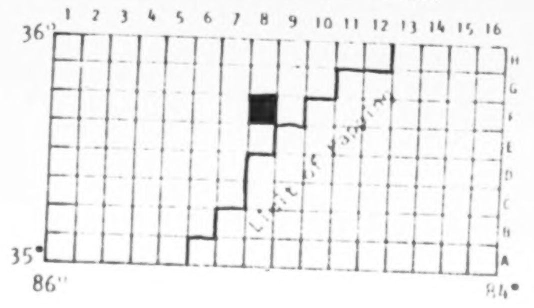
Gravel pits

q	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

PENNINE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 118 NW

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Base control by USC&GS, USGS, and TVA

Revised by TVA in 1971 from photogrammetric methods using aerial photographs taken 1968 and field checked by TVA. 1/24 quadrangle dated 1943. Map field checked by TVA 1971

Polyconic projection. 1927 North American datum

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

PENNINE, TENN.
1973

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Swingle, George D., 1964
Geologic map of the Pennine quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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LANDSLIDES AND RELATED FEATURES

OF THE PENNINE, TENN. QUADRANGLE

by
Roger L. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (F-9)

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leavin sandstone and limestone rock faces unsupported.

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
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sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
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sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
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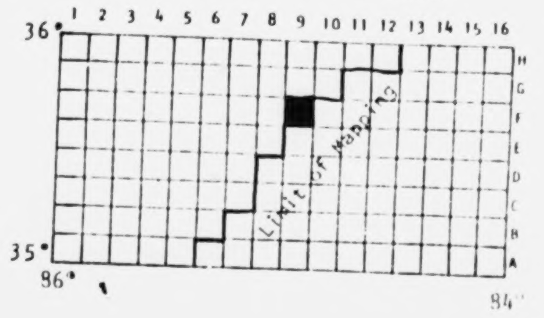
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

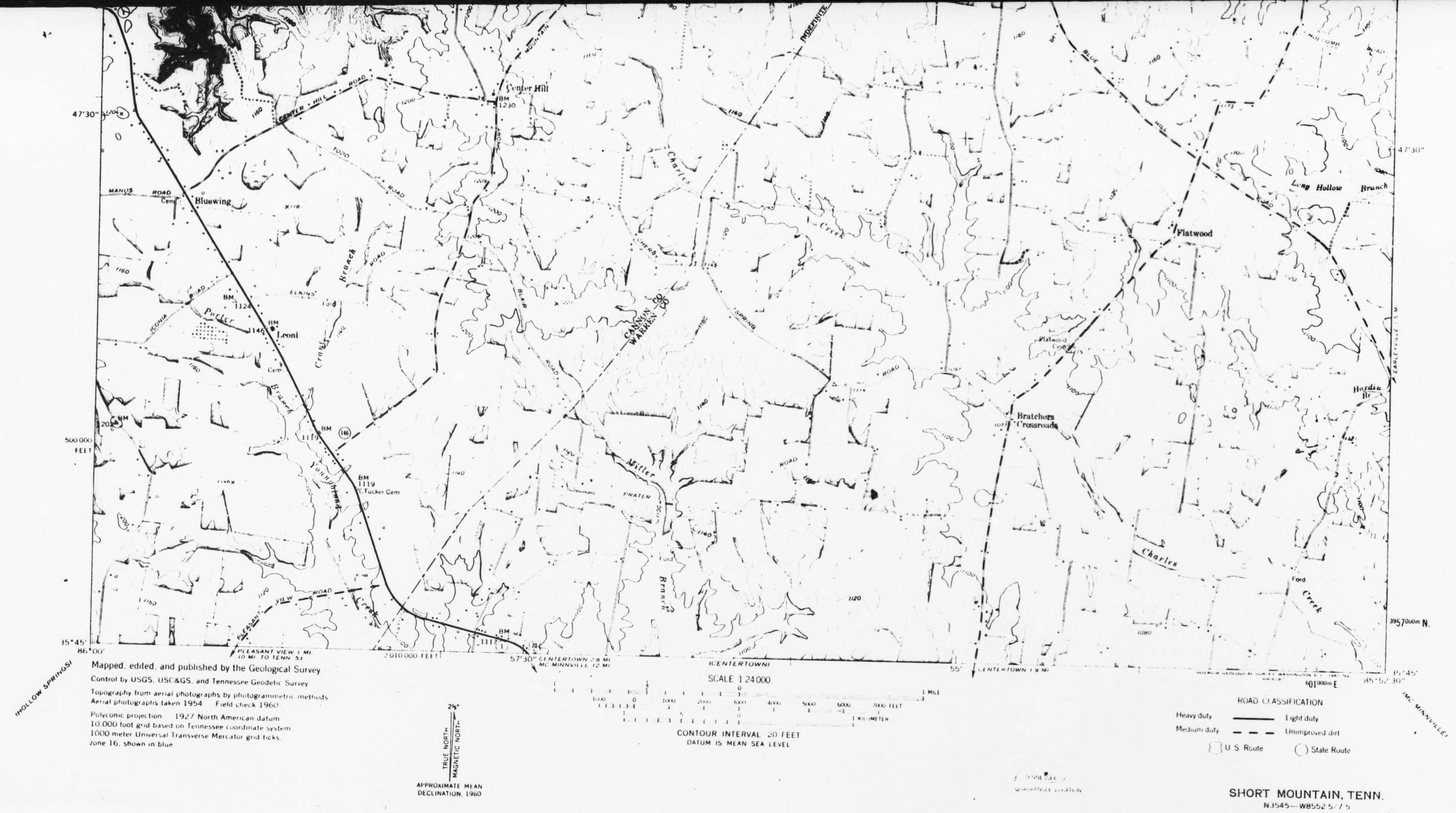
SHORT MOUNTAIN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and Tennessee Geodetic Survey
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960
Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
U.S. Route — State Route



LANDSLIDES AND RELATED FEATURES

OF THE SHORT MOUNTAIN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-1)

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1975

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. Charles W., 1968
Geologic map of the Short Mountain quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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Landslides too small or obscure to map individually.

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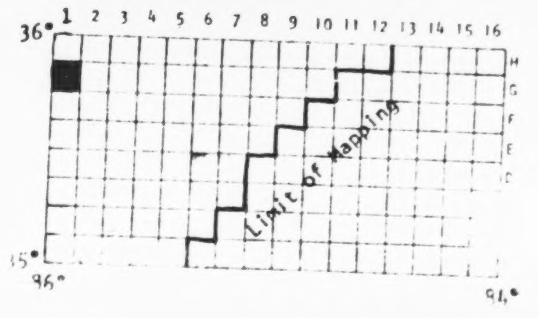
CHATTANOOGA 1° X 2° SHEET



DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

DIBRELL QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

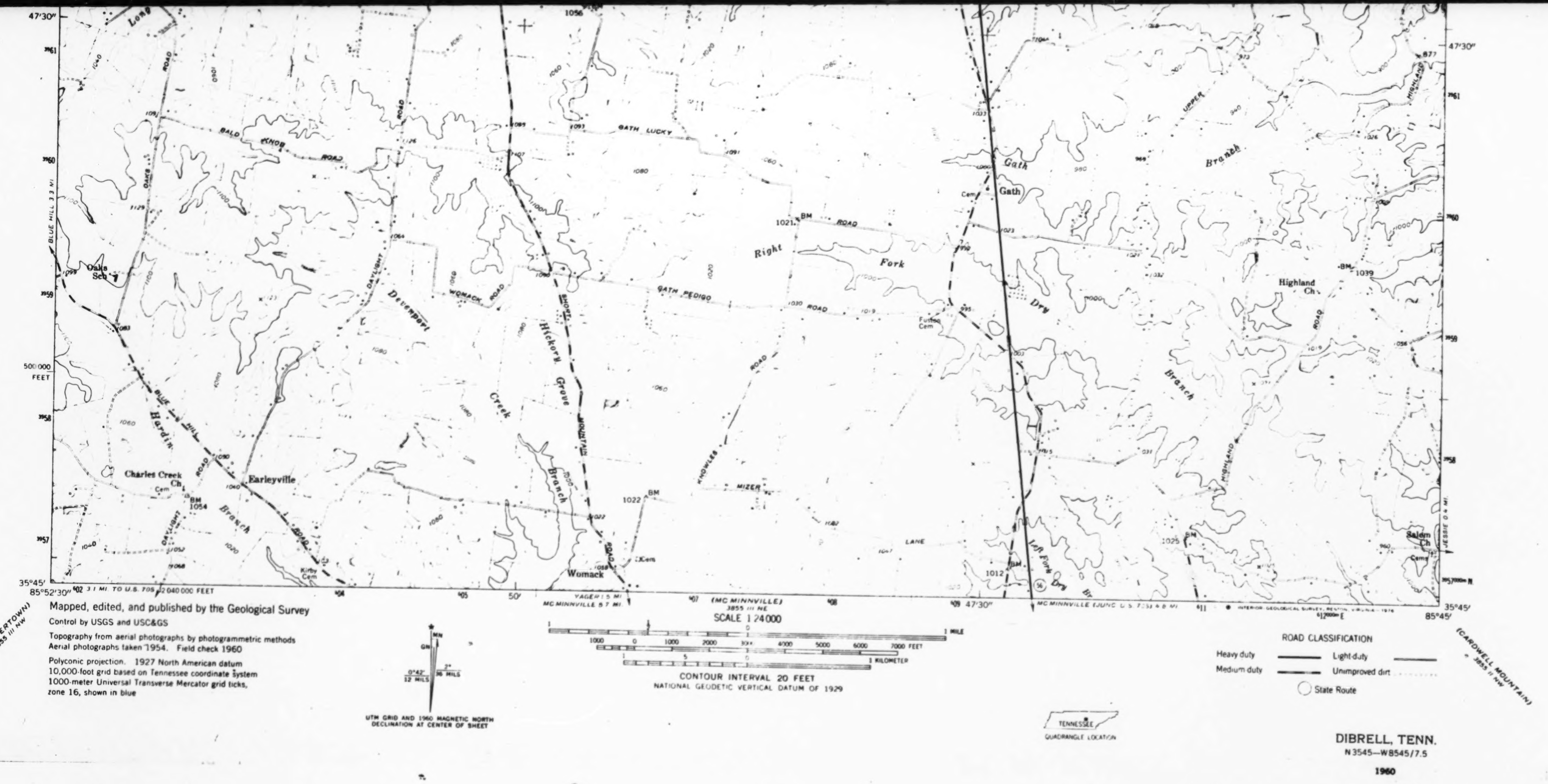
Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

DIBRELL, TENN.
N3545—W8545/7.5



Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. C.W., 1968
Geologic map of the Dibrell quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE DIBRELL, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-2)

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Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

- sh — bench with high wall
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Coal refuse banks

- r — identified on aerial photographs; not classified in field check
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- q — quarry site

Gravel pits

- g — site of gravel pit

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- af — earth flow in fill
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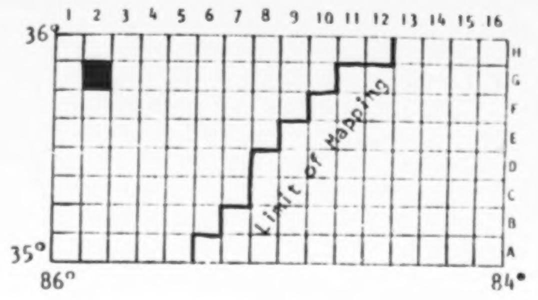
- a/r — earth flow in coal refuse

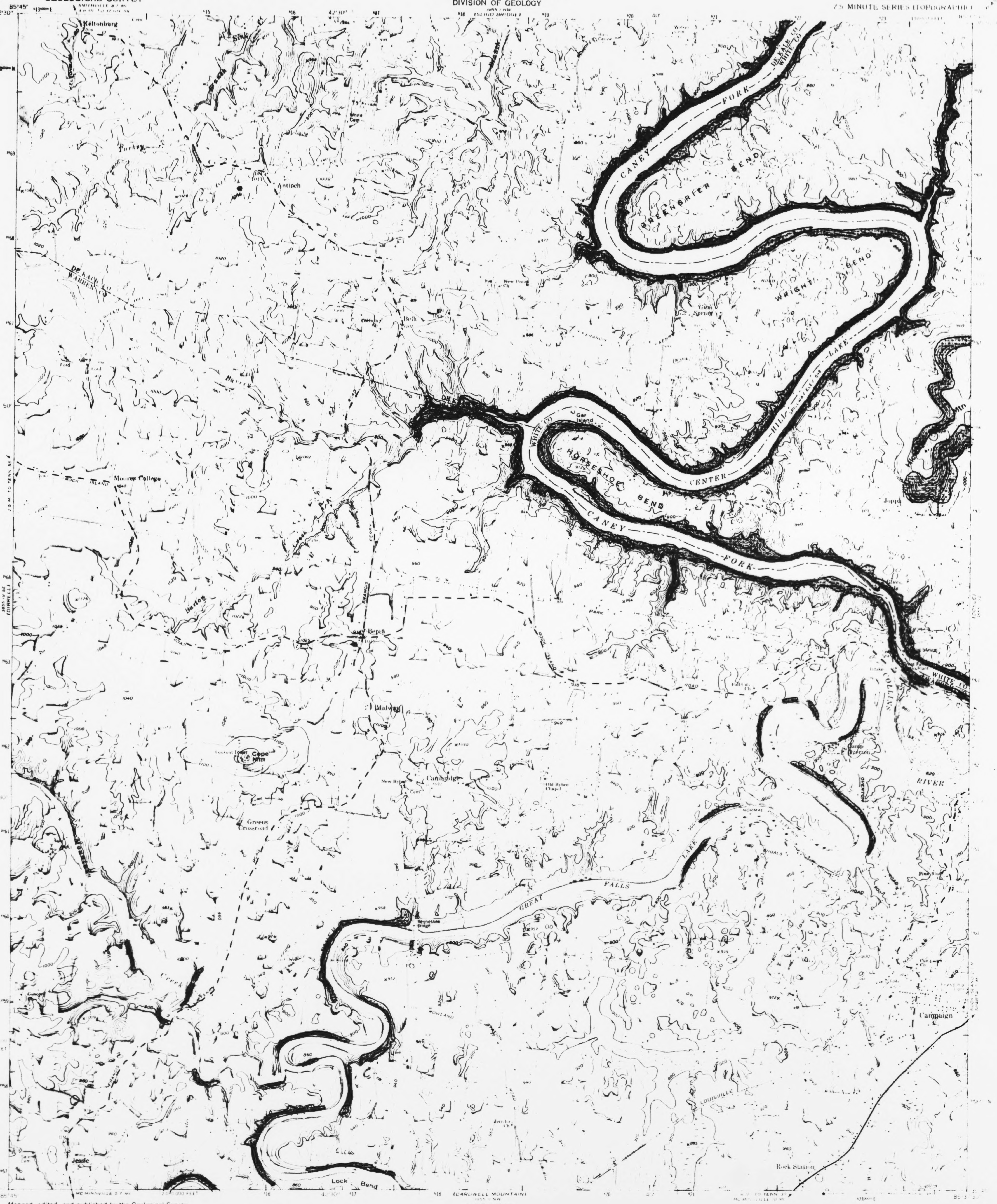
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

CAMPAIGN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey
Control by USGS, NOS/NOAA, USCE, and TVA
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954   Field inspected 1960
Polyconic projection   10,000-foot grid ticks based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue   1927 North American Datum

CONTOUR INTERVAL 20 FEET

ROAD CLASSIFICATION
Heavy-duty   Light-duty
Medium-duty   Unimproved dirt
U.S. Route   State Route

(MC MINNVILLE)
3855 III NE

Mapped, edited, and published by the Geological Survey
Control by USGS, NOS/NOAA, USCE, and TVA
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field inspected 1960
Polyconic projection. 10,000-foot grid ticks based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 6 meters south and ? meters west as shown by dashed corner ticks

Center Hill Reservoir is subject to controlled inundation to 685 feet
Reservation boundary from maps by U. S. Corps of Engineers
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Map photoinspected 1976
No major culture or drainage changes observed

UTM GRID AND 1960 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
U S Route — State Route

(WELCHLAND)
3855 II SE

CAMPAIGN, TENN.
N3545—W8537.5/7.5
1960
PHOTOINSPECTED 1976

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1975

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. C.W., 1968
Geologic map of the Campaign quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE CAMPAIGN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-3)

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Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE
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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

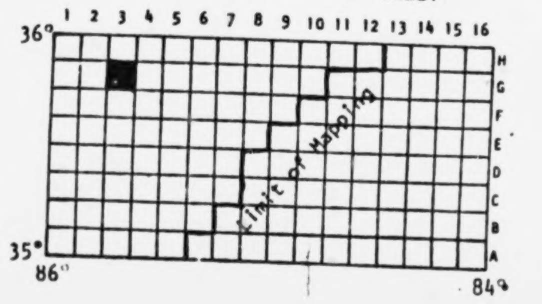
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

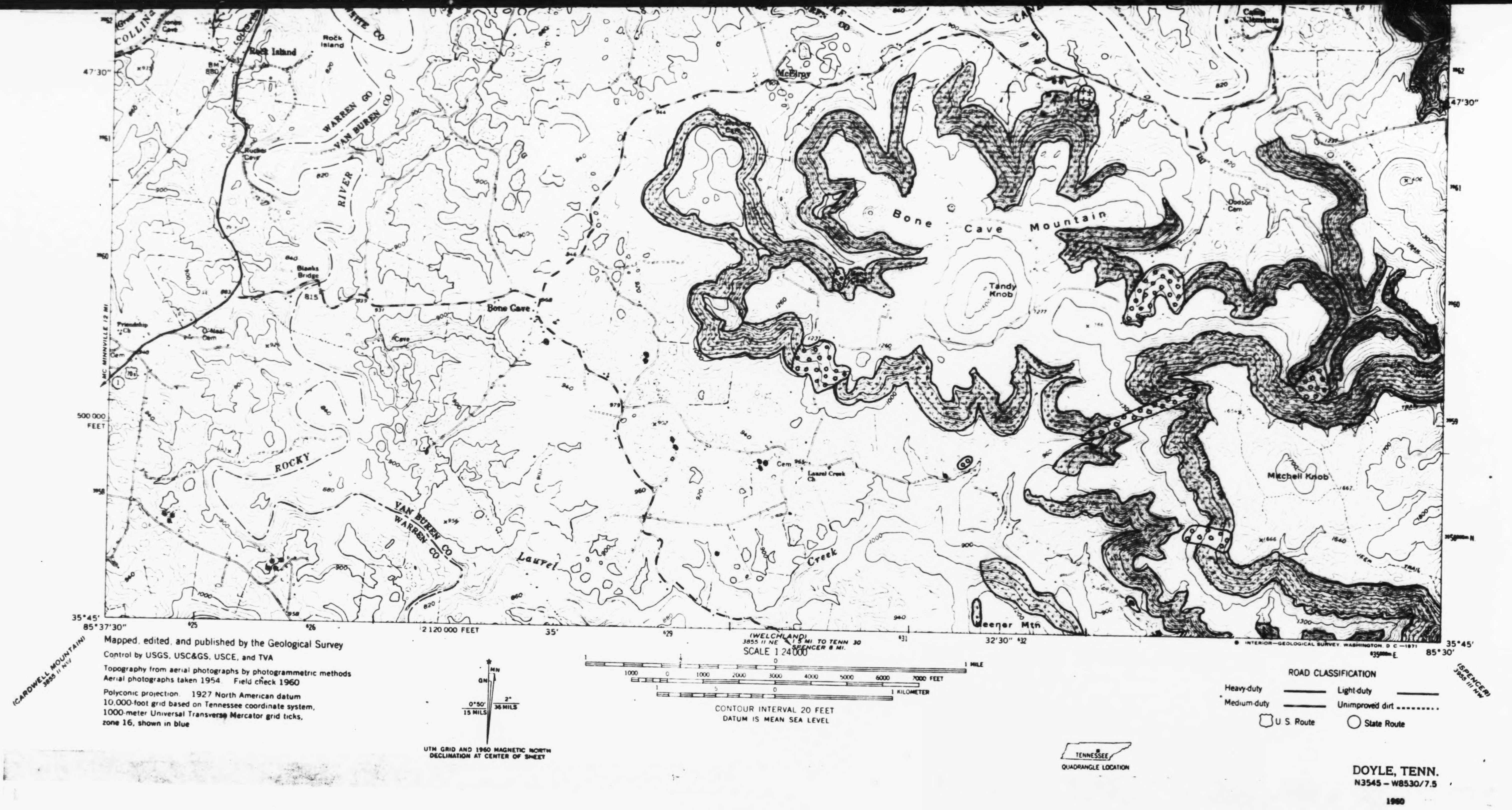
DOYLE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, USCE, and TVA
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954 Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system,
1000-meter Universal Transverse Mercator grid ticks

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty
Light-duty
Medium-duty
Unimproved dirt
U.S. Route
State Route



Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1975
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Sykes, Ronald C., 1969
Geologic map of the Doyle quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE DOYLE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-4)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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NOTE
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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
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sd	multiple furrows and multiple benches
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sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbg	burning
rbs	sludge

Quarries

q	quarry site

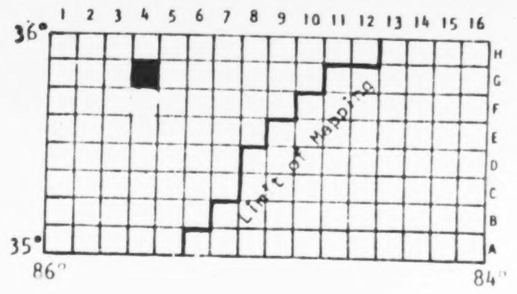
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

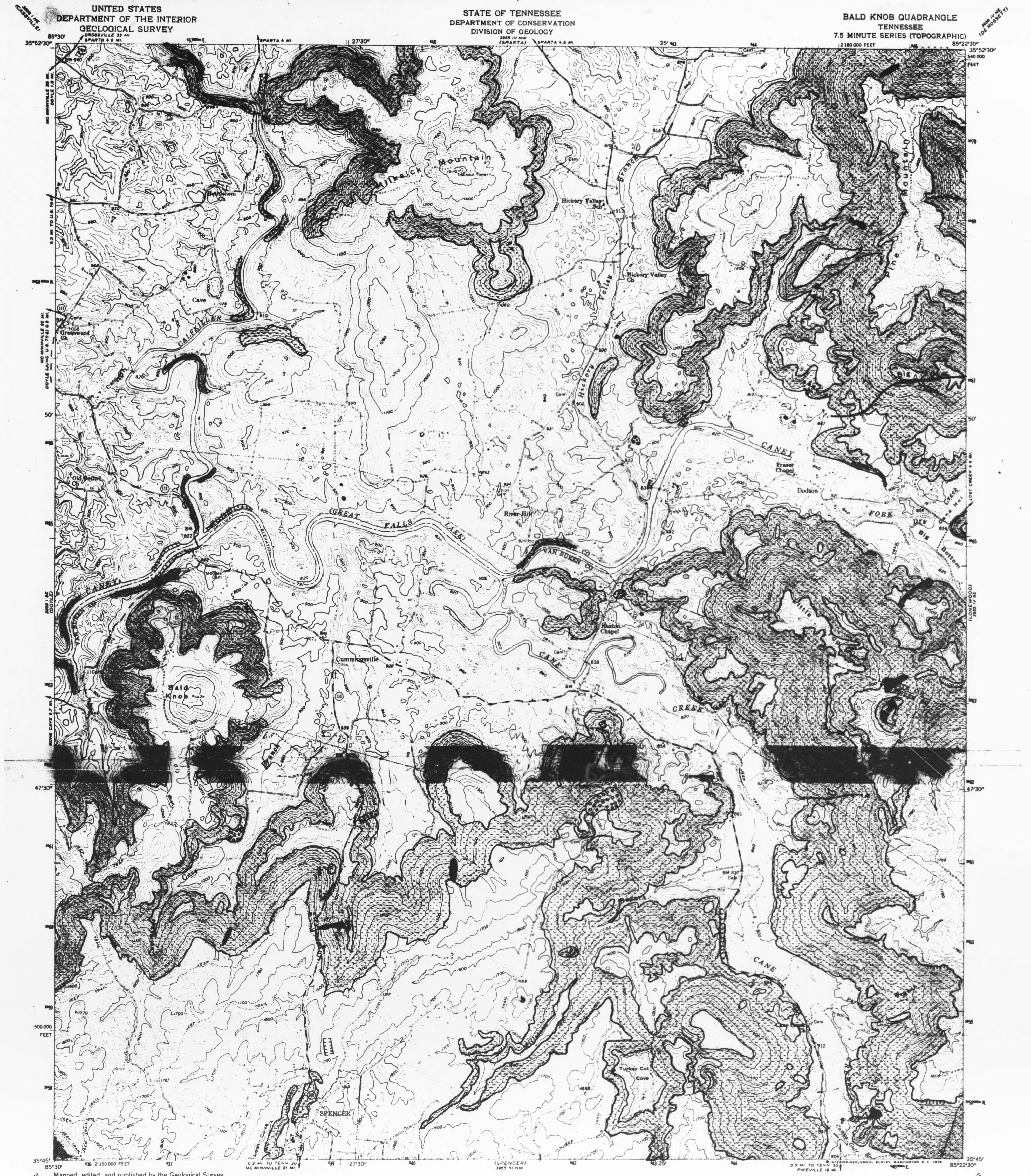
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

BALD KNOB QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and TVA

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1951. Field check 1956

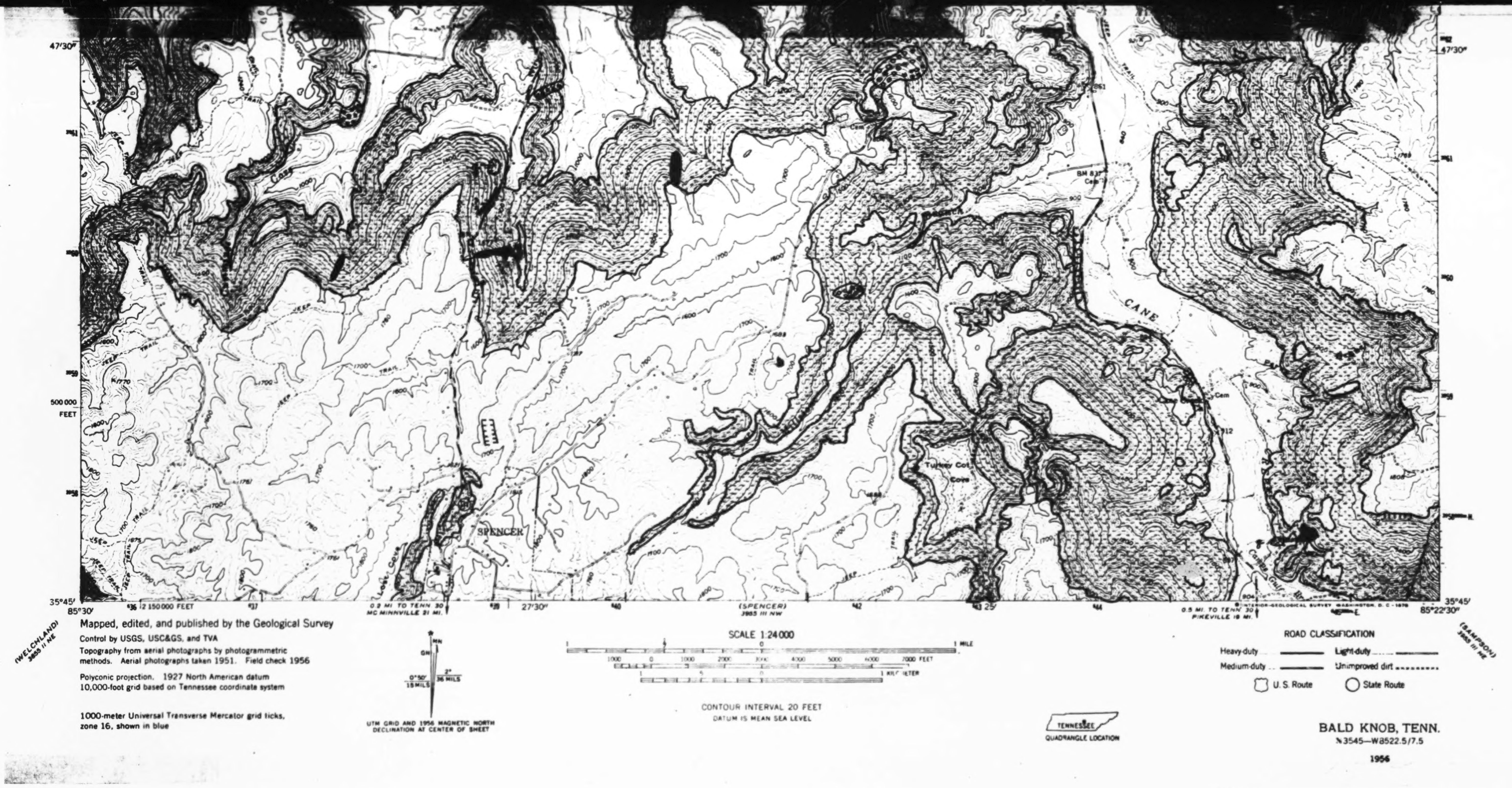
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system

1000-meter Universal Transverse Mercator grid ticks,

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route



Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1975

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE BALD KNOB, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-5)

NOTE

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COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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AREAS LEAST PRONE TO LANDSLIDES
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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
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sd	multiple furrows and multiple benches
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srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remians

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

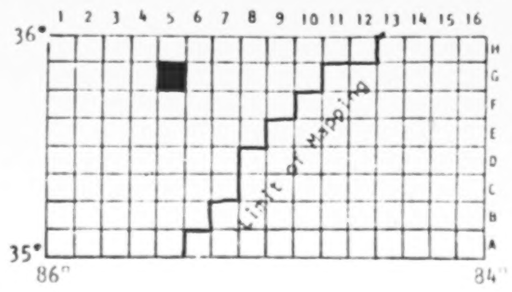
Gravel pits

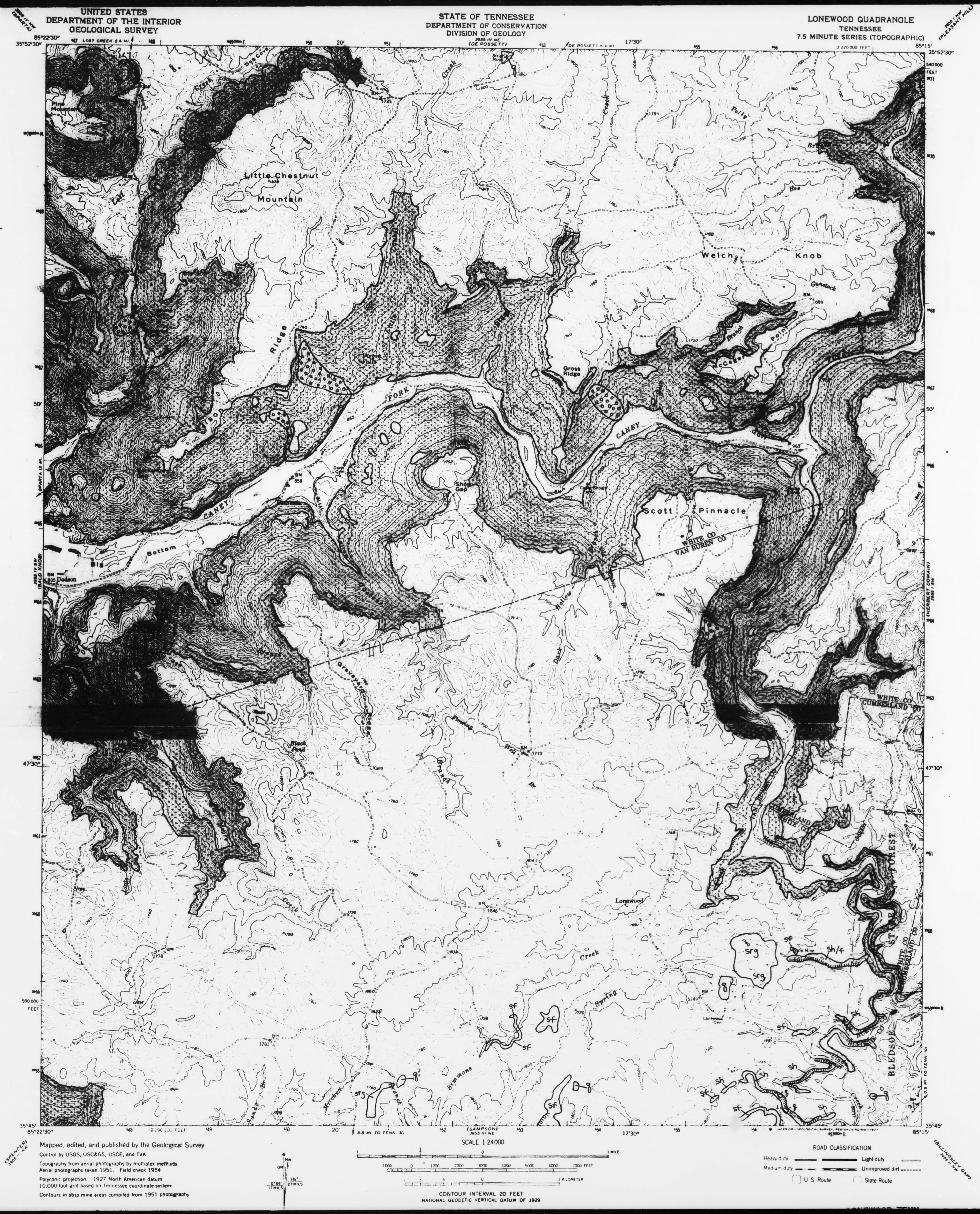
g	site of gravel pit

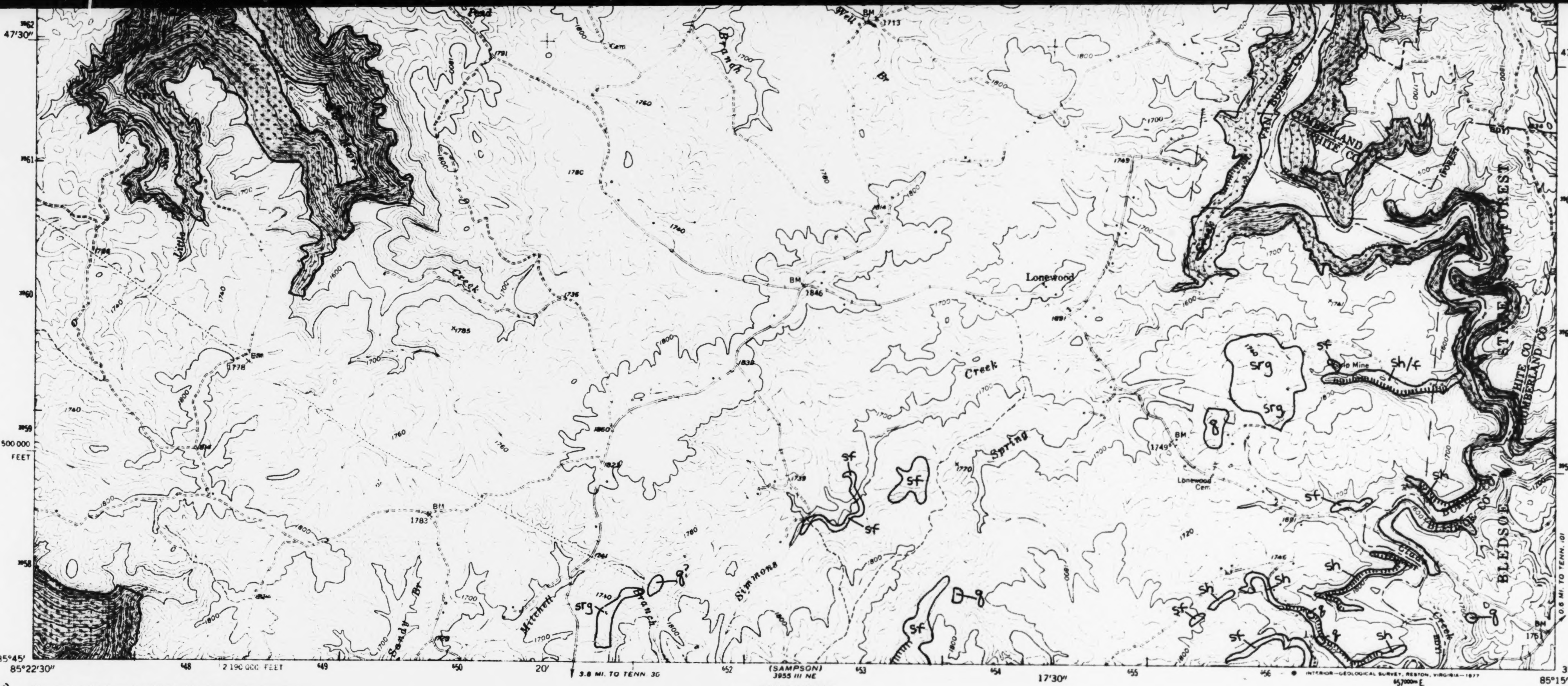
Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET




UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
LONEWOOD QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
Little Chestnut
Mountain
Ridge
Gross
Ridge
Welch
Knob
CANEY
FORK
Big
Bottom
Scott
Pinnacle
WHITE CO
VAN BUREN CO
WHITE CO
CUMBERLAND CO
Black
Pond
Longwood
Creek
Spring
BLEDSOE
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, USCE, and TVA
Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1954
Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system
Contours in strip mine areas compiled from 1951 photography
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Heavy duty
Light duty
Medium duty
Unimproved dirt
U S Route
State Route



(SPENCER) 3955 III NW

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, USCE, and TVA

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system

Contours in strip mine areas compiled from 1951 photography

1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

UTM GRID AND 1954 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
U. S. Route — State Route

(BILLINGSLEY GAP)

LONEWOOD, TENN.
N3545—W8515/7.5
1954

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE LONEWOOD, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-6)

NOTE

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COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

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SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

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Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
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g	site of gravel pit

Slides in man-made features

af	earth flow in fill
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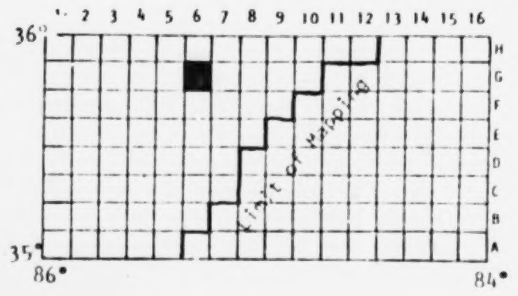
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

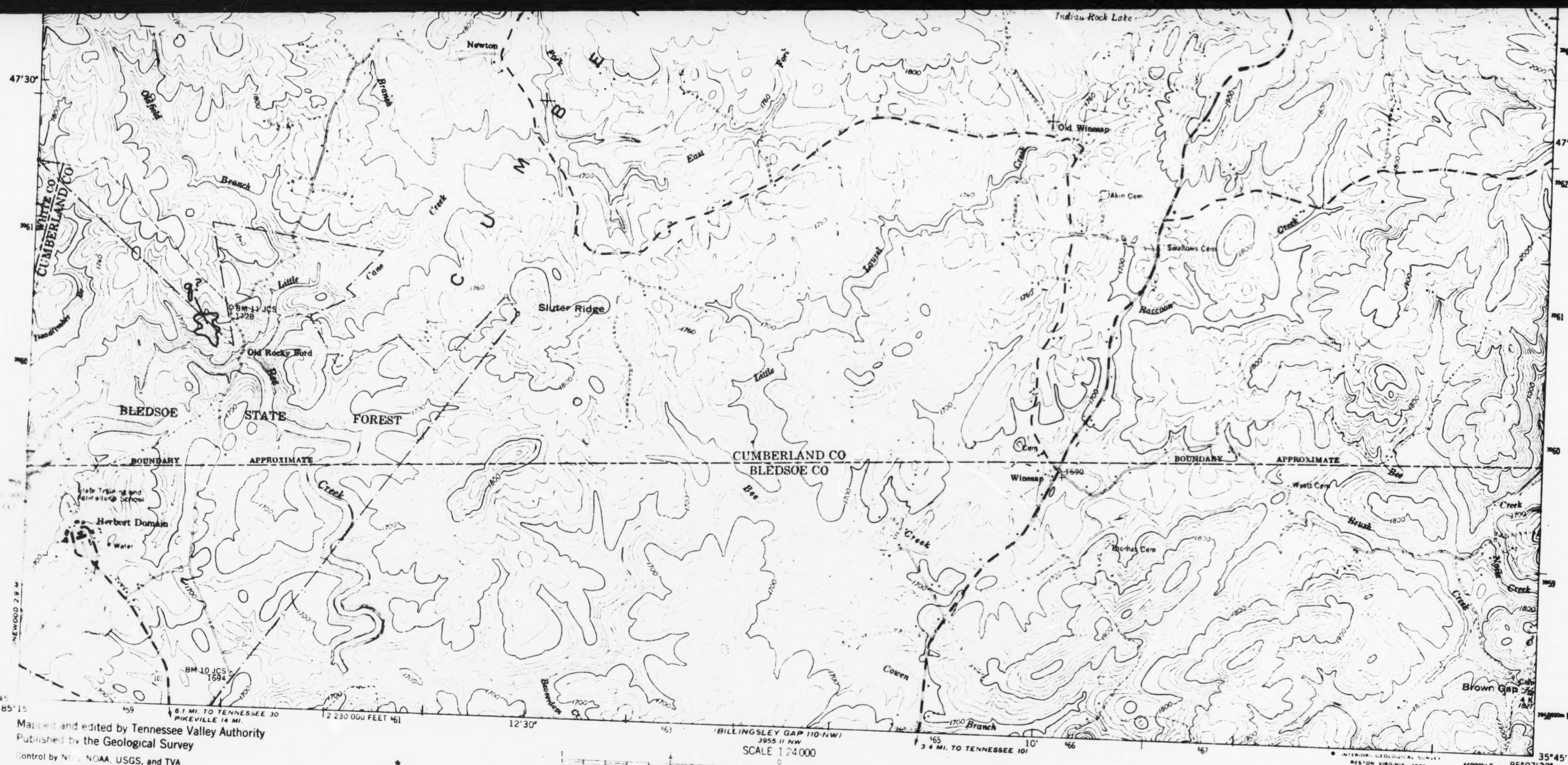
HERBERT DOMAIN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 109-SW

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOAA, USGS, and TVA
Topography by photogrammetric methods using aerial photographs taken 1950. Map field checked by TVA, 1956

SCALE 1:24000

ROAD CLASSIFICATION
Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U. S. Route — State Route

(TVA 109-SW)



Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS, NOAA, USGS, and TVA

Topography by photogrammetric methods using aerial photographs taken 1952. Map field checked by TVA, 1956

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system

1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1976 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy-duty — Poor motor road
Medium-duty — Wagon and jeep track
Light-duty — Foot trail
U. S. Route — State Route

In developed areas, only through roads are classified

HERBERT DOMAIN, TENN.
N3545—W8507.5/7.5

1956
PHOTOREVISED 1976

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE HERBERT DOMAIN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-7)

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COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE (V)
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

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MAN-MADE FEATURES
Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

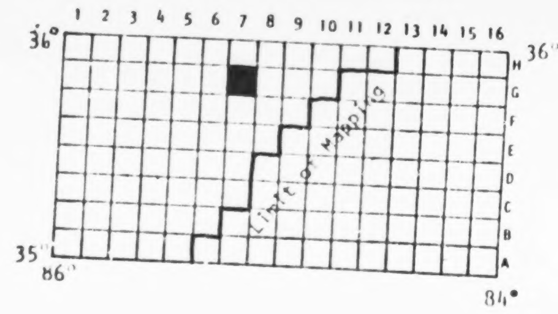
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

VANDEVER QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 109 SE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USC&GS, USGS, WPA and TVA

Topography by multiplex methods from aerial photographs taken 1952. Field examination by TVA, 1956

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

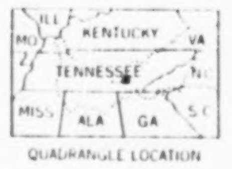
Control by USC&GS, USGS, WPA, and TVA

Topography by multiplex methods from aerial photographs taken 1952. Field examination by TVA, 1956

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system

1000-meter Universal Transverse Mercator grid ticks, Zone 16

CONTOUR INTERVAL 20 FEET



QUADRANGLE LOCATION

VANDEVER, TENN.

1956

Landslides and related features interpreted from aerial photographs:

1:79,000 (Black and White) 1976

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE VANDEVER, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-8)

NOTE

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
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Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

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Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

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Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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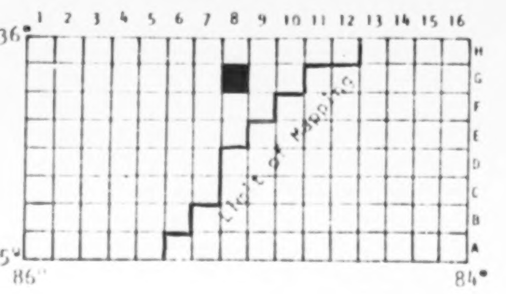
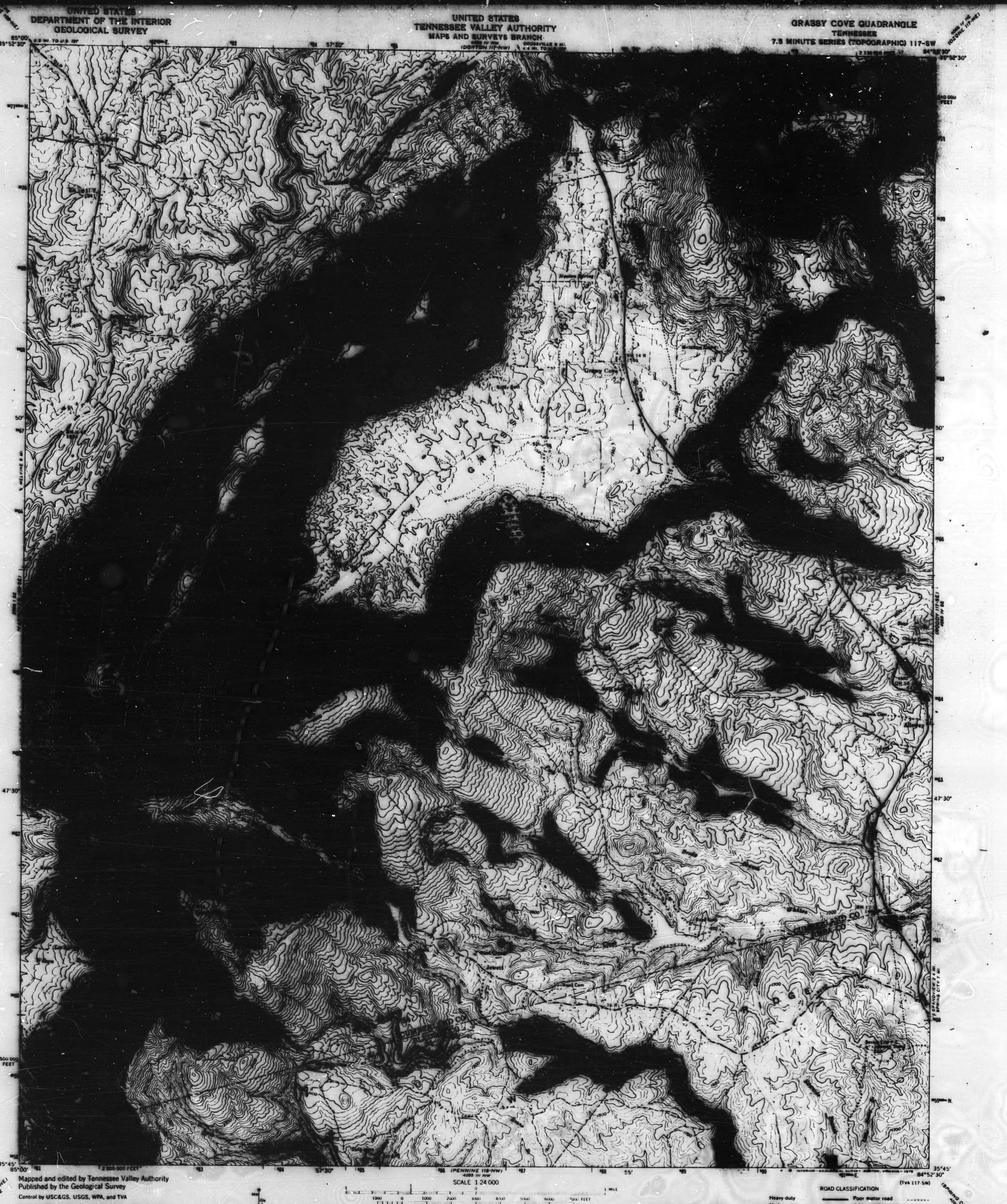
CHATTANOOGA 1° X 2° SHEET




UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
(DORTON 117-NW)
GRASSY COVE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 117-SW
(OZONE 117-NE)
85°00'
35°52'30"
57'30"
84°52'30"
50'
47'30"
500 000
FEET
35°45'
55'
(PENNINE 118-NW)
4055 III NW
(TVA 117-SW)
(MELVINE 110-NE)
(SPRING CITY 118-NE)
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USC&GS, USGS, WPA, and TVA
Revised by TVA in 1971 by photogrammetric methods using aerial photographs taken 1968 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1973
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system
SCALE 1:24 000
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 KILOMETRE
CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ILL
KENTUCKY
VA
MO
TENNESSEE
NC
MISS
ALA
GA
SC
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Poor motor road
Wagon and jeep track
Foot trail
U. S. Route
State Route

LANDSLIDES AND RELATED FEATURES

OF THE GRASSY COVE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-9)

Landslides and related features interpreted from aerial photographs:

1;79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Milici, Robert C., 1965
Geologic Map of the Grassy Cove quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

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Landslides too small or obscure to map individually.

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- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

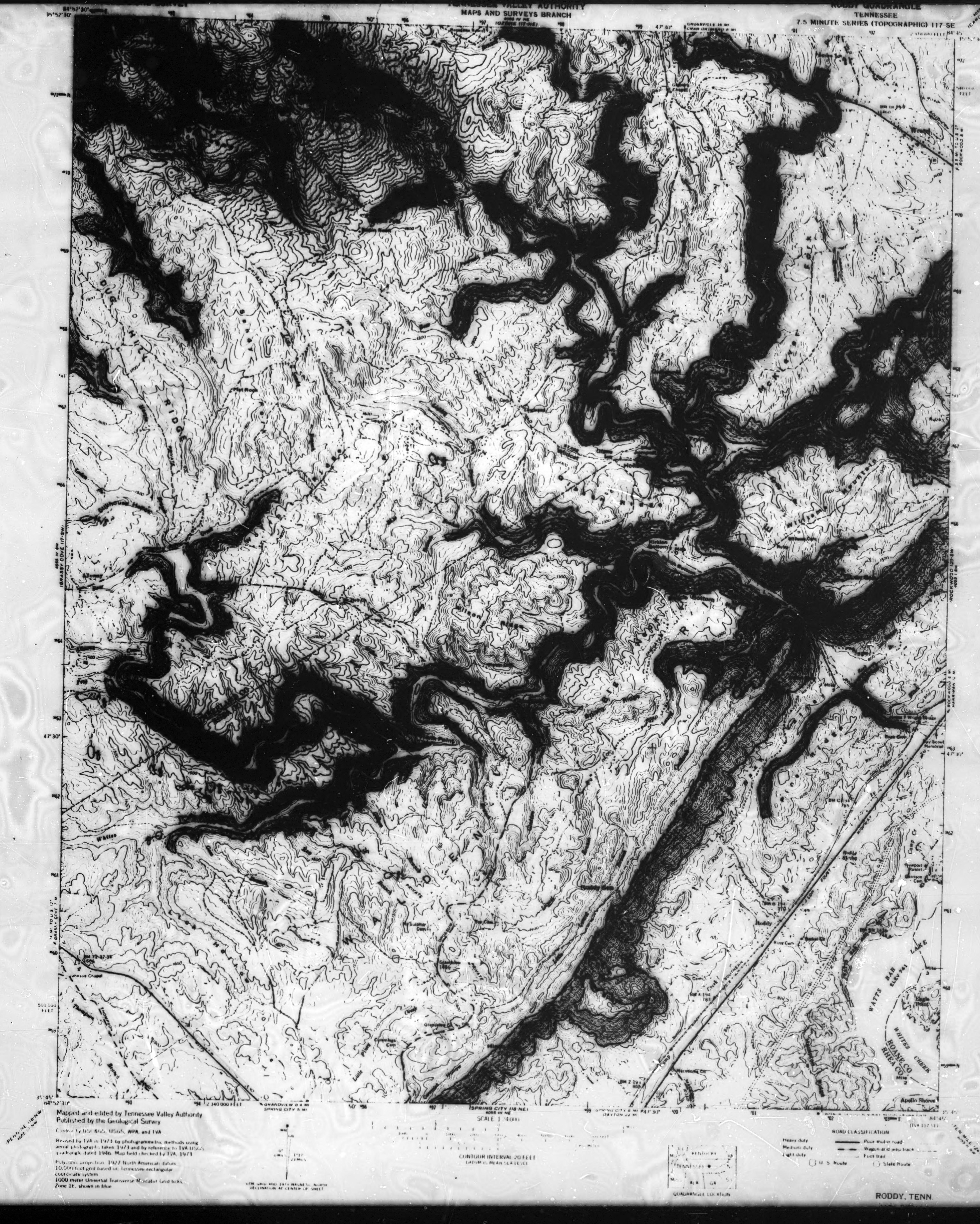
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET


TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
RODDY QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 117-SE
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USC&GS, USGS, WPA, and TVA
Revised by TVA in 1973 by photogrammetric methods using aerial photographs taken 1973 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1973
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee rectangular coordinate system
1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue
SCALE 1:24000
CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
QUADRANGLE LOCATION
ROAD CLASSIFICATION
Heavy duty
Medium duty
Light duty
Poor motor road
Wagon and jeep track
Foot trail
U. S. Route
State Route
SPRING CITY (118-NE)
ROANE CO
RHEA CO
Apollo Shores
RODDY, TENN.

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USC&GS, USGS, WPA, and TVA

Revised by TVA in 1973 by photogrammetric methods using aerial photographs taken 1973 and by reference to TVA-USGS quadrangle dated 1946. Map field checked by TVA, 1973

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
1000 meter Universal Transverse Mercator Grid ticks, Zone 16, shown in blue

UTM GRID AND 1973 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Heavy duty — Poor motor road
Medium duty — Wagon and jeep track
Light duty — Foot trail
U. S. Route — State Route

RODDY, TENN.
N3545—W8445/7.5
1973

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Milici, R.C., and Swingle, G.D., 1972
Geologic map of the Roddy quadrangle, Tennessee.
Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE RODDY, TENN. QUADRANGLE

by
Roger E. Thomas

1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (G-10)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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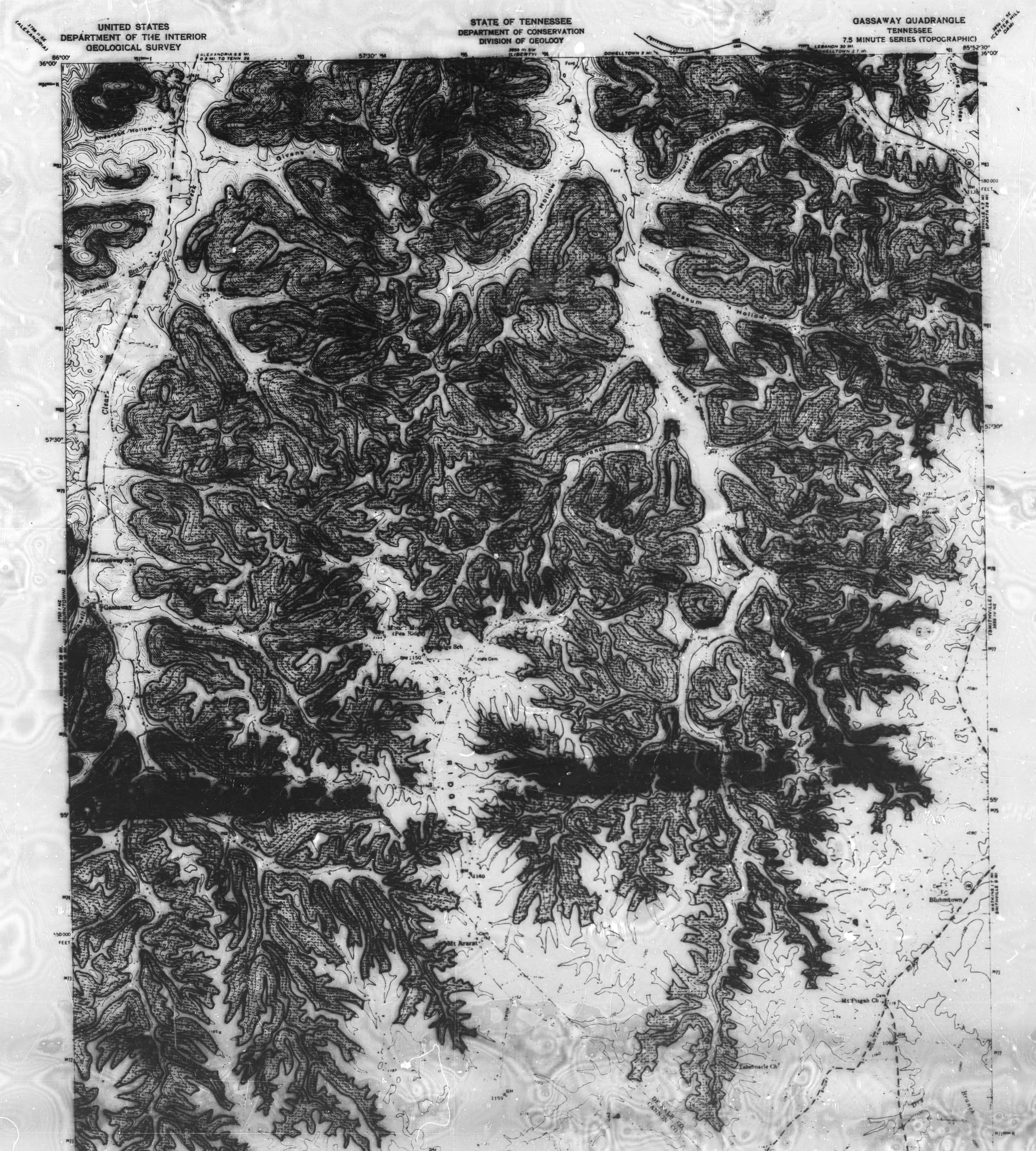
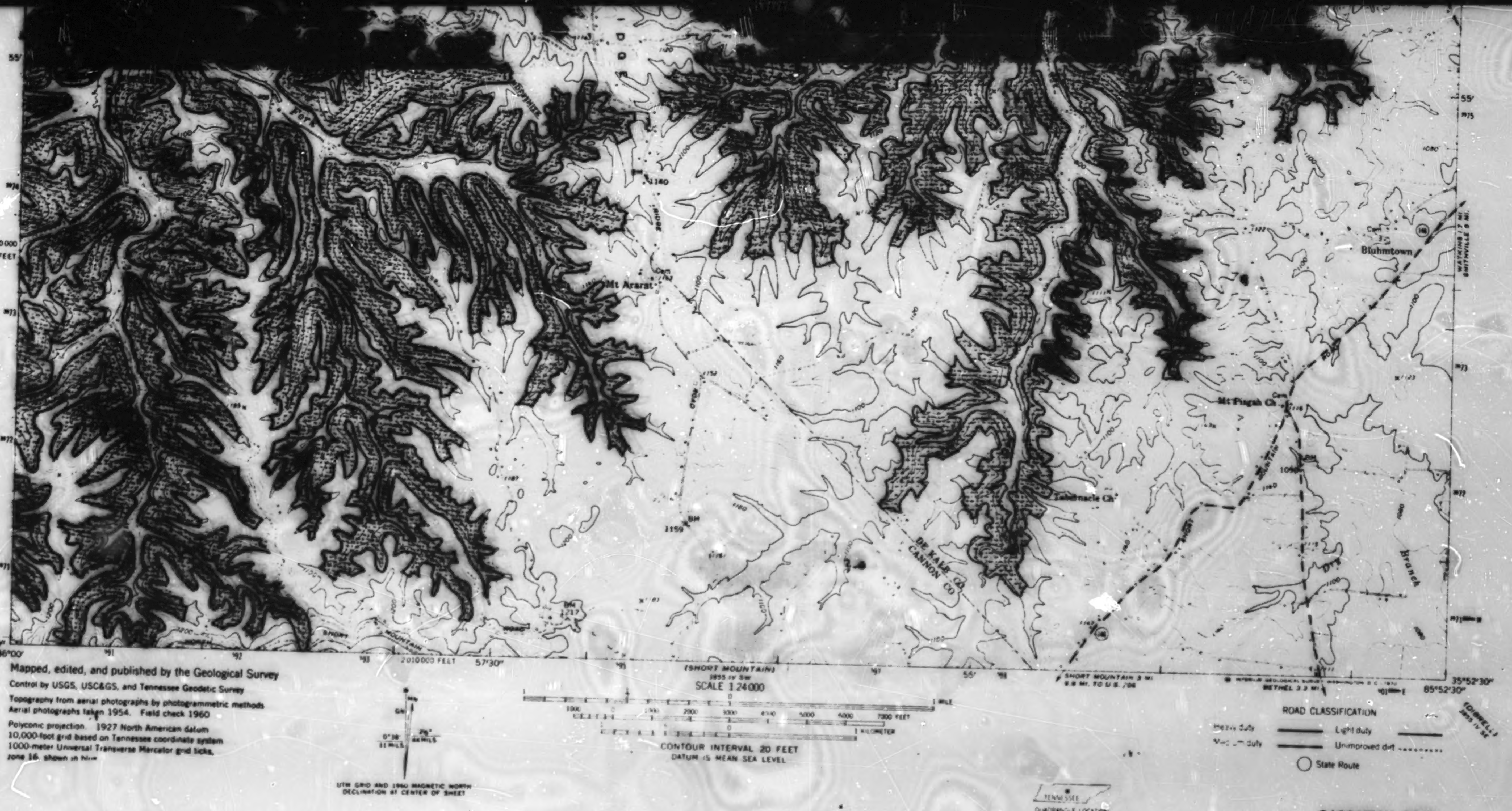
CHATTANOOGA 1° X 2° SHEET


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
GASSAWAY QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)
86°00'
36°00'
57'30"
85°52'30"
35°52'30"
55'
Opossum Hollow
Creek
Ford
Bluhmtown
Mt Pisgah Ch
Tabernacle Ch
Mt Ararat
SCALE 1:24000
ROAD CLASSIFICATION
Mapped, edited, and published by the Geological Survey



GASSAWAY, TENN.
N3552.5—W8552.5/7.5
1980

Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1975
1:40,000 (Black and White) 1979

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE GASSAWAY, TENN. QUADRANGLE

by
Roger I. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-1)

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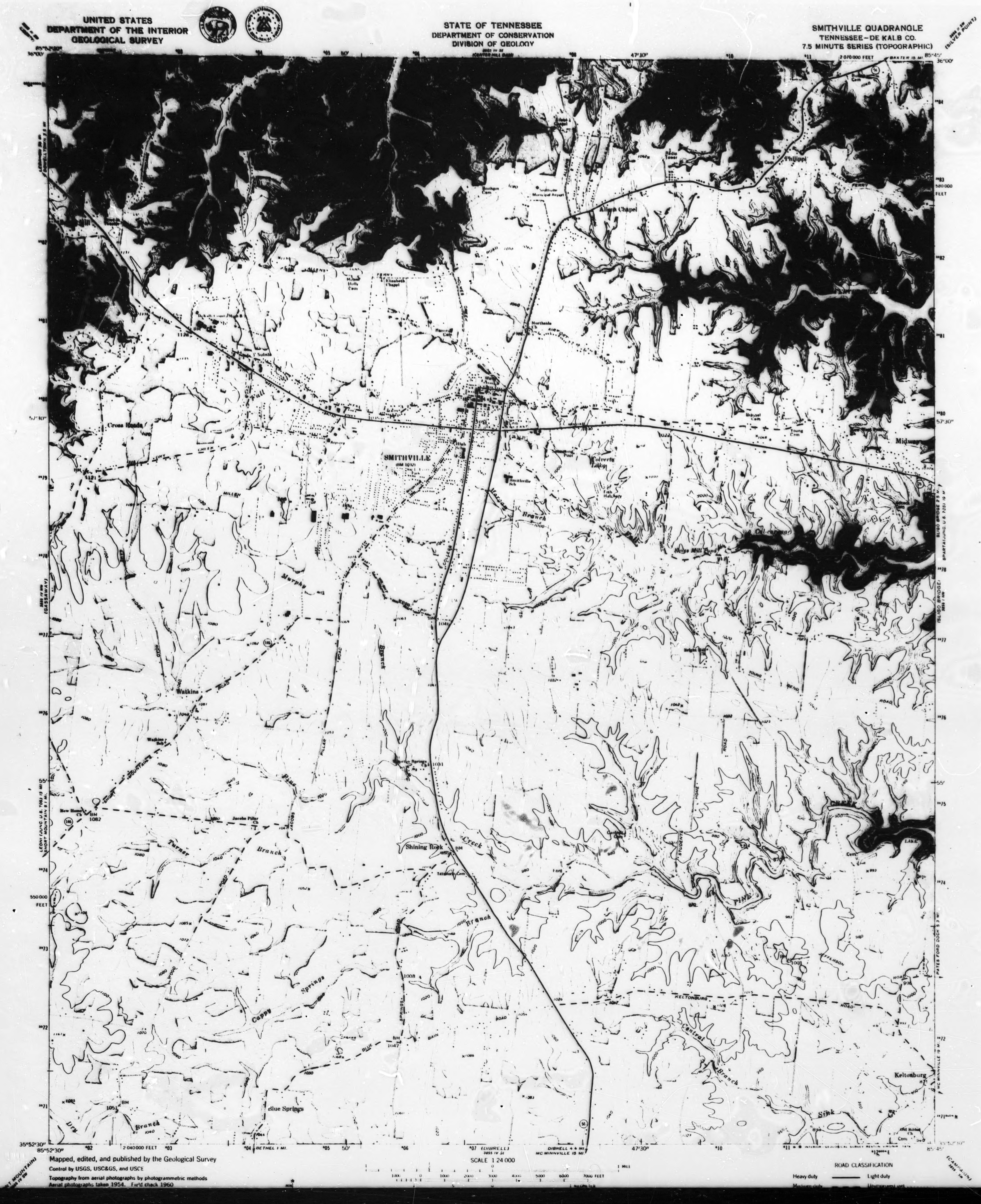
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY
SMITHVILLE QUADRANGLE
TENNESSEE–DE KALB CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SMITHVILLE
Cross Roads
Philippi
Midway
Watkins
Shining Rock
Blue Springs
Keltonburg
Dry Branch
Turner Branch
Coppy Springs
Central Branch
Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960
SCALE 1:24 000
ROAD CLASSIFICATION
Heavy duty
Light duty

Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION

Heavy duty — Light duty
Medium duty — Unimproved dirt
U.S. Route — State Route

QUADRANGLE LOCATION

SMITHVILLE, TENN.
N3552.5—W8545/7.5
1960
PHOTOREVISED 1979

Landslides and related features interpreted from aerial photographs:
1:40.000 (Black and White) 1979
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. C.W., 1968
Geologic map of the Smithville quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE SMITHVILLE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-2)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

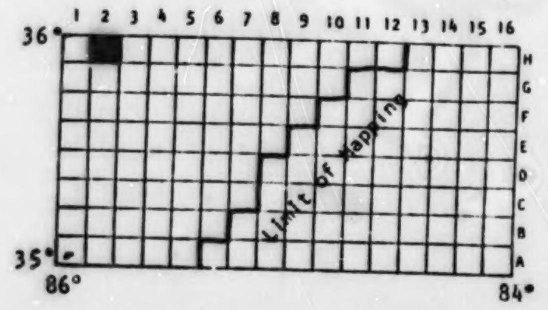
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

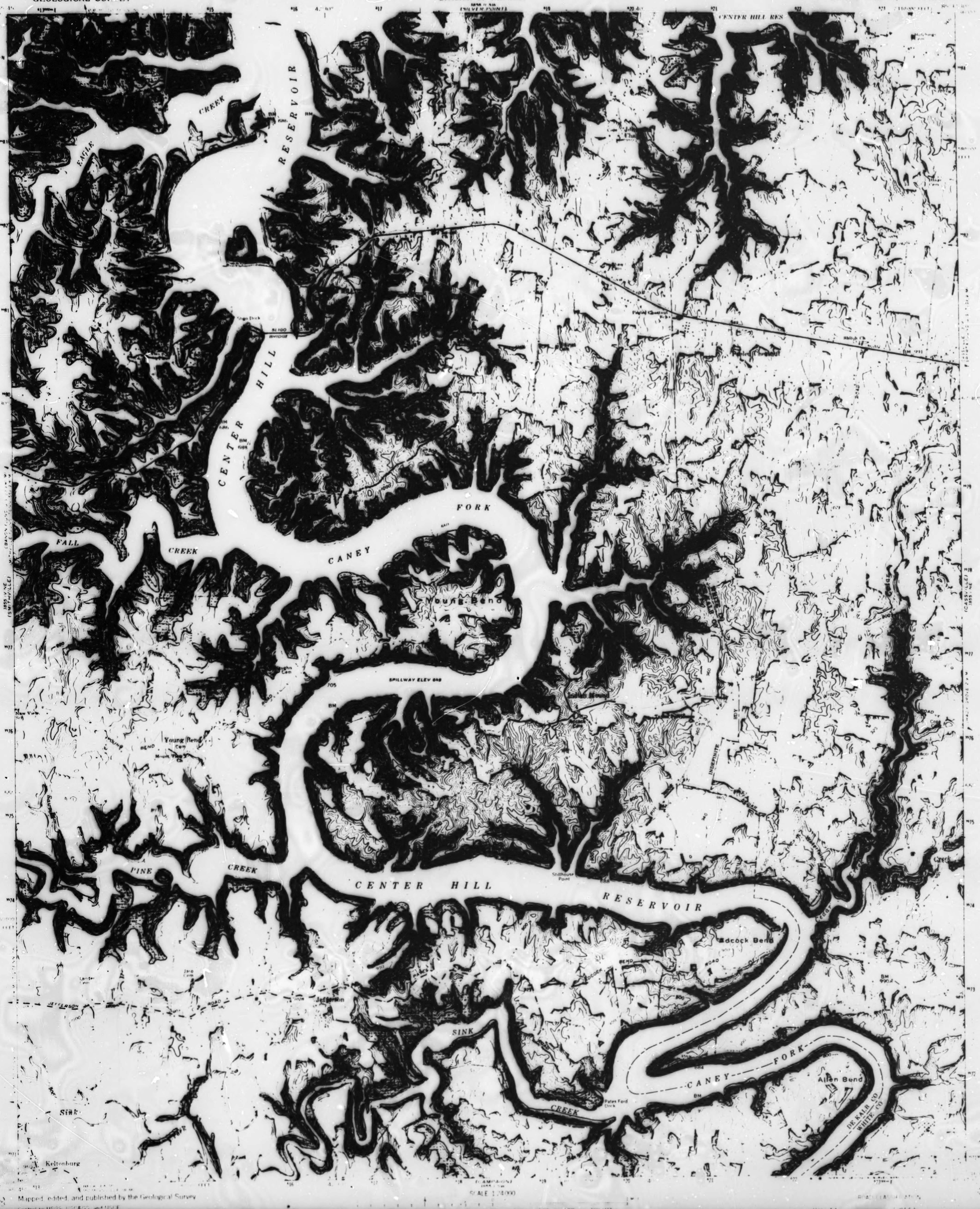
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

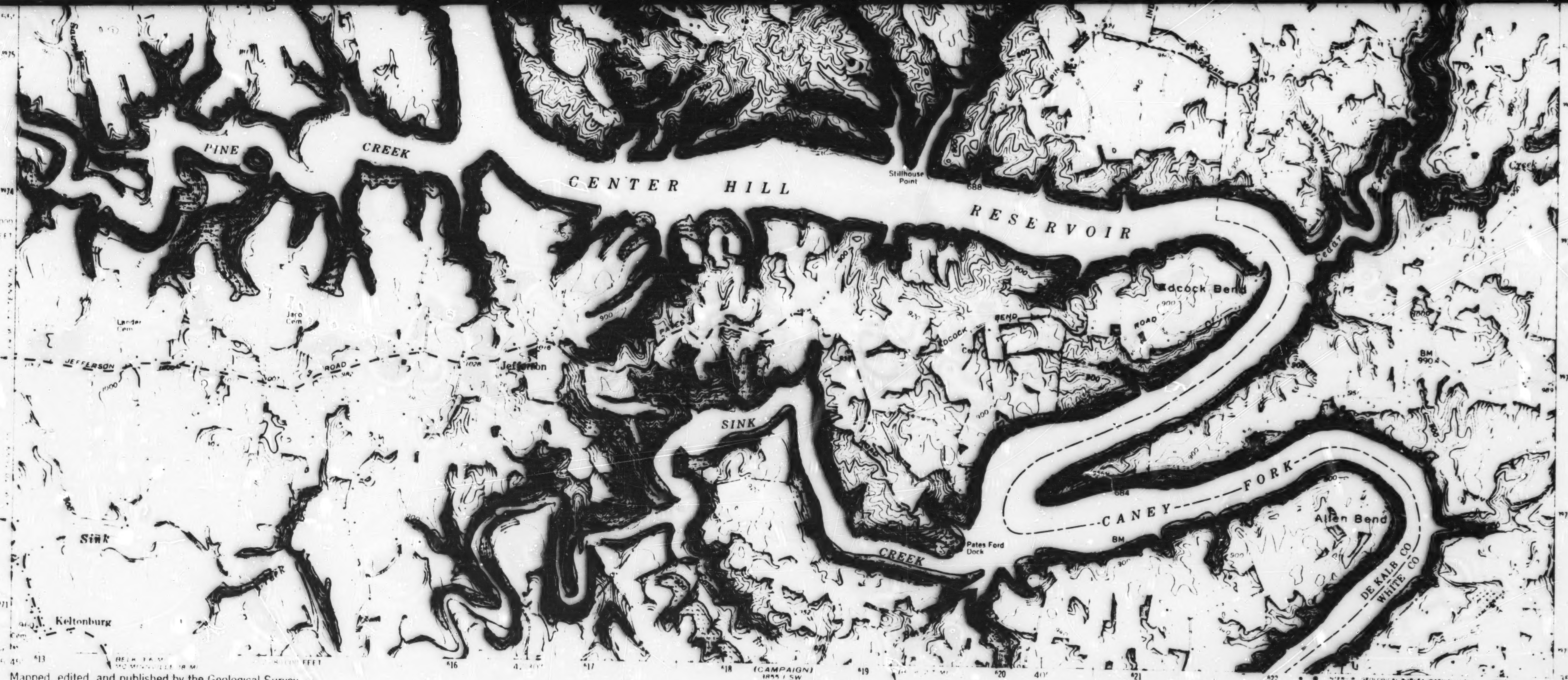
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

SLIGO BRIDGE QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

SCALE 1:24000



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and USCE

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee coordinate system
1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

UTM GRID AND 1960 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Center Hill Reservoir is subject to controlled inundation to 685 feet

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy duty — Light duty
Medium duty — Unimproved dirt
State Route

SLIGO BRIDGE, TENN.
N3552.5—W8537.5/7.5

1960

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1975

Photointerpretation and field check 1981

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. C.W., and Barnes, R.H., 1968
Geologic map of the Sligo Bridge quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

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Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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LANDSLIDES AND RELATED FEATURES

OF THE SLIGO BRIDGE, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-3)

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
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AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

NOTE
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MAN-MADE FEATURES
Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

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sf — furrowed with high wall
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ss — hilltop removed
srg — reclaimed by grading
sru — reclaimed by secondary use
sh/r — regraded in part, high wall remains

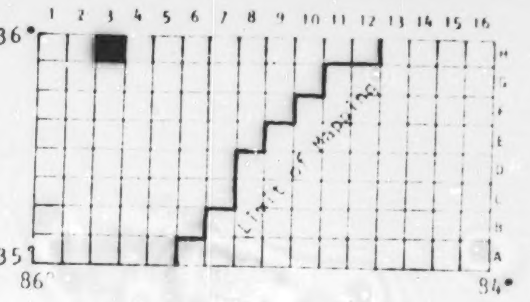
Coal refuse banks
r — identified on aerial photographs; not classified in field check
rb — not burnt nor on fire
rbb — burnt
rbd — burning
rbs — sludge

Quarries
q — quarry site

Gravel pits
g — site of gravel pit

Slides in man-made features
af — earth flow in fill
a/s — earth flow in strip castings
a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

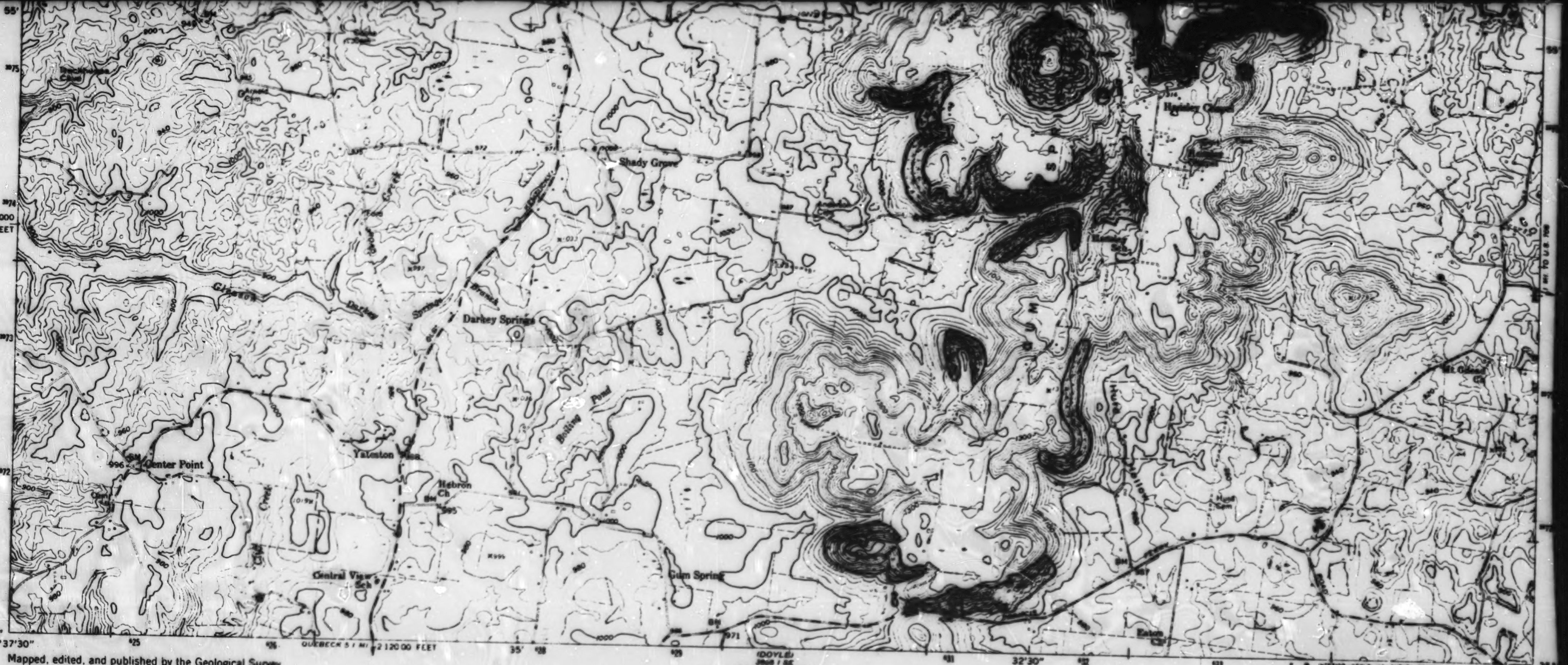
STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

CASSVILLE QUADRANGLE
TENNESSEE–WHITE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE
Topography from aerial photographs by photogrammetric methods

SCALE 1:24000

ROAD CLASSIFICATION
Heavy-duty
Light-duty



Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, and USCE.
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1954. Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system
1000-metre Universal Transverse Mercator grid ticks, zone 16, shown in blue

UTM GRID AND 1960 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
State Route

TENNESSEE
QUADRANGLE LOCATION

CASSVILLE, TENN.
N3552.5 — W8530/7.5
1960

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1975

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Wilson, Jr. C.W., 1968
Geologic map of the Cassville quadrangle, Tennessee. Tennessee Department of Conservation, Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE CASSVILLE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-4)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

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q	quarry site

Gravel pits

g	site of gravel pit

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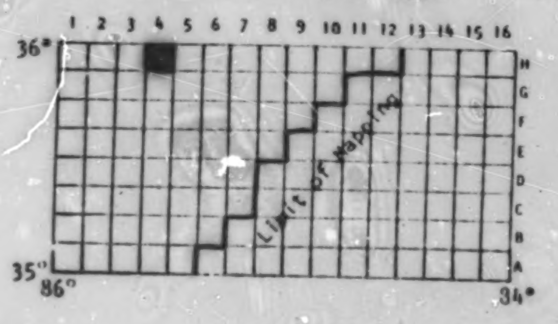
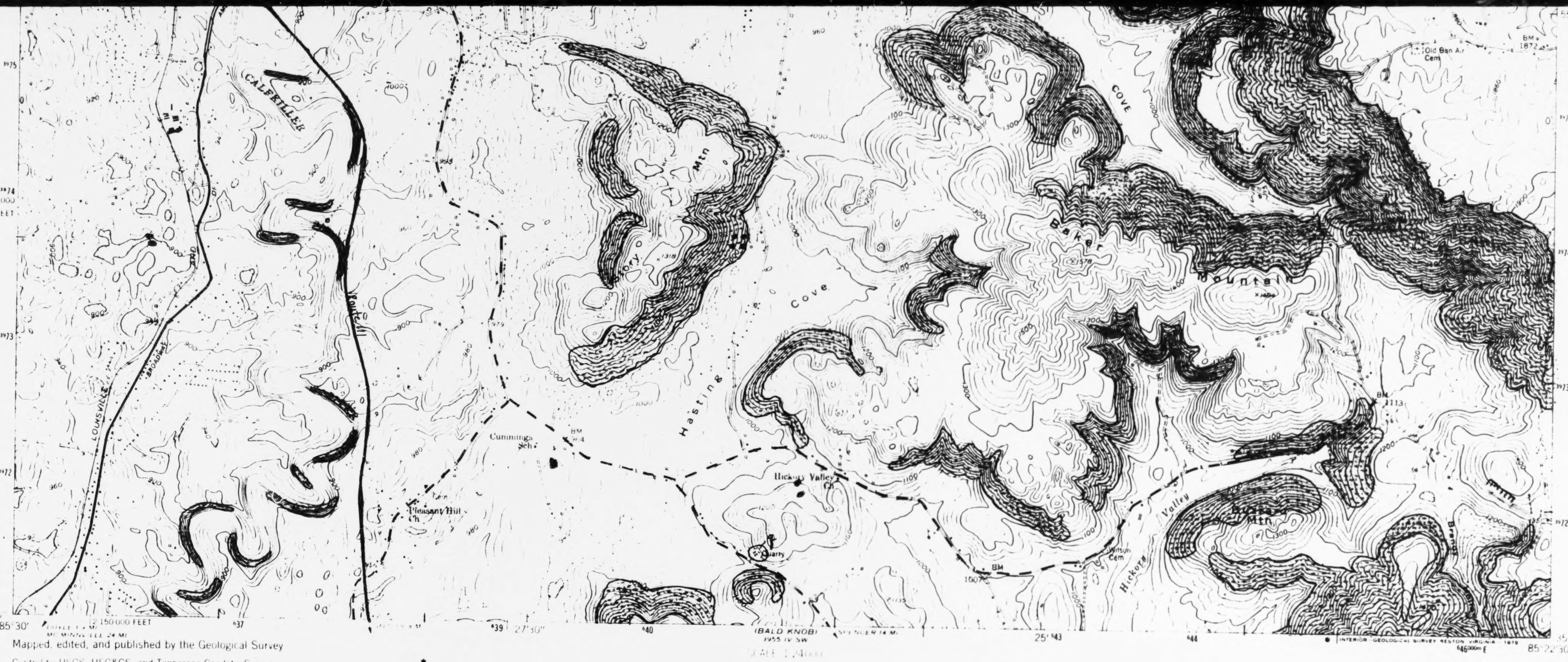
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

SPARTA QUADRANGLE
TENNESSEE—WHITE CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS, USC&GS, and Tennessee Geodetic Survey

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1951. Field check 1954

Polyconic projection. 1927 North American datum
10,000-foot grid based on Tennessee coordinate system

Unchecked elevations are shown in brown

1000-meter Universal Transverse Mercator grid ticks
zone 16, shown in blue

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

SPARTA, TENN.
N3552.5—W8522.5/7.5

1954

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
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LANDSLIDES AND RELATED FEATURES

OF THE SPARTA, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-5)

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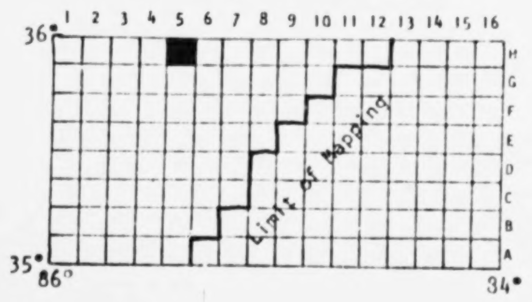
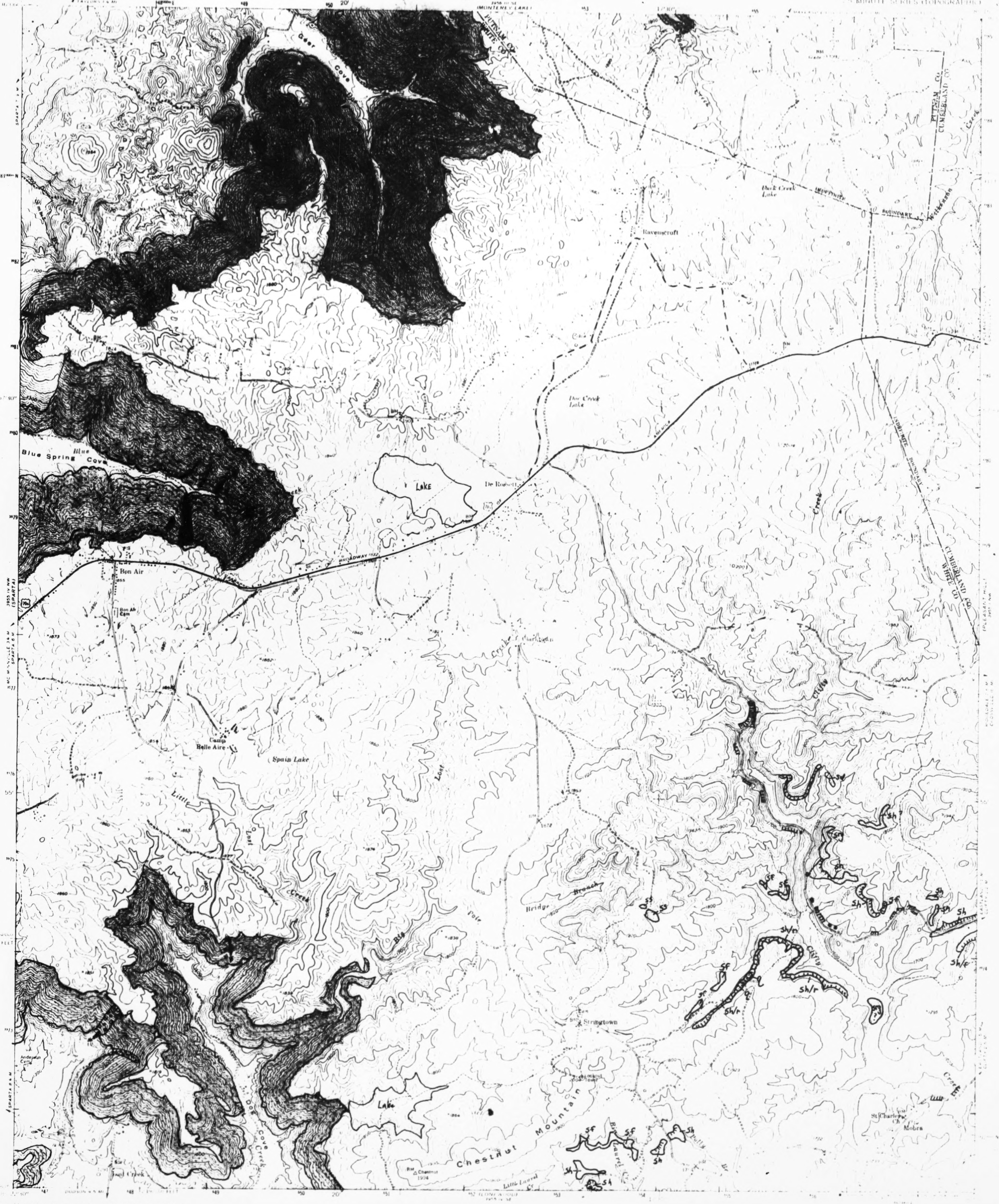


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF TENNESSEE
DEPARTMENT OF CONSERVATION
DIVISION OF GEOLOGY

DE ROSSETT QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Mapped, edited, and published by the Geological Survey
Control by USGS, USC&GS, TVA, and Tennessee Geodetic Survey
Aerial photographs taken 1951. Field checked 1954
1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 4 meters west as shown by dashed corner ticks

UTM GRID AND 1954 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

DE ROSSETT, TENN.

1954

Landslides and related features interpreted from aerial photographs:
1:40,000 (Black and White) 1979
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE De ROSSETT, TENN. QUADRANGLE

by
Roger F. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-6)

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Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

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MAN-MADE FEATURES

Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)

sh	bench with high wall
sf	furrowed with high wall
sd	multiple furrows and multiple benches
ss	hilltop removed
srg	reclaimed by grading
sru	reclaimed by secondary use
sh/r	regraded in part, high wall remains

Coal refuse banks

r	identified on aerial photographs; not classified in field check
rb	not burnt nor on fire
rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

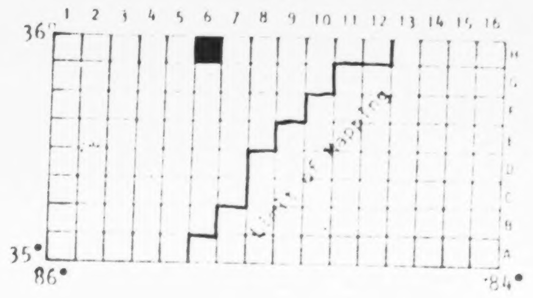
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

PLEASANT HILL QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 109-NW

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by NOS/NOAA, USGS, and TVA
Topography by photogrammetric methods using aerial photographs taken 1952. Map field checked by TVA, 1956
1000-meter Universal Transverse Mercator grid ticks

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy duty
Medium duty
Light duty
U.S. Route
State Route

85°15' — 12'30" — 10' — 85°07'30"

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, and TVA

Topography by photogrammetric methods using aerial photographs taken 1952. Map field checked by TVA, 1956

1000 meter Universal Transverse Mercator Grid ticks Zone 16, shown in blue

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy duty — Four motor road
Medium duty — Wagon and jeep track
Light duty — Foot trail
U.S. Route — State Route

PLEASANT HILL, TENN.
N3552.5—W8507.5/7.5

1956

Landslides and related features interpreted from aerial photographs:

1:40,000 (Black and White) 1979

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE PLEASANT HILL, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-7)

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
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- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

Coal refuse banks

- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries

- q — quarry site

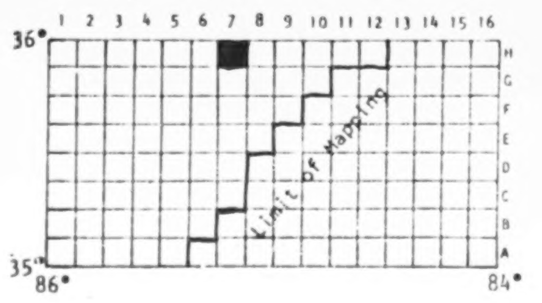
Gravel pits

- g — site of gravel pit

Slides in man-made features

- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

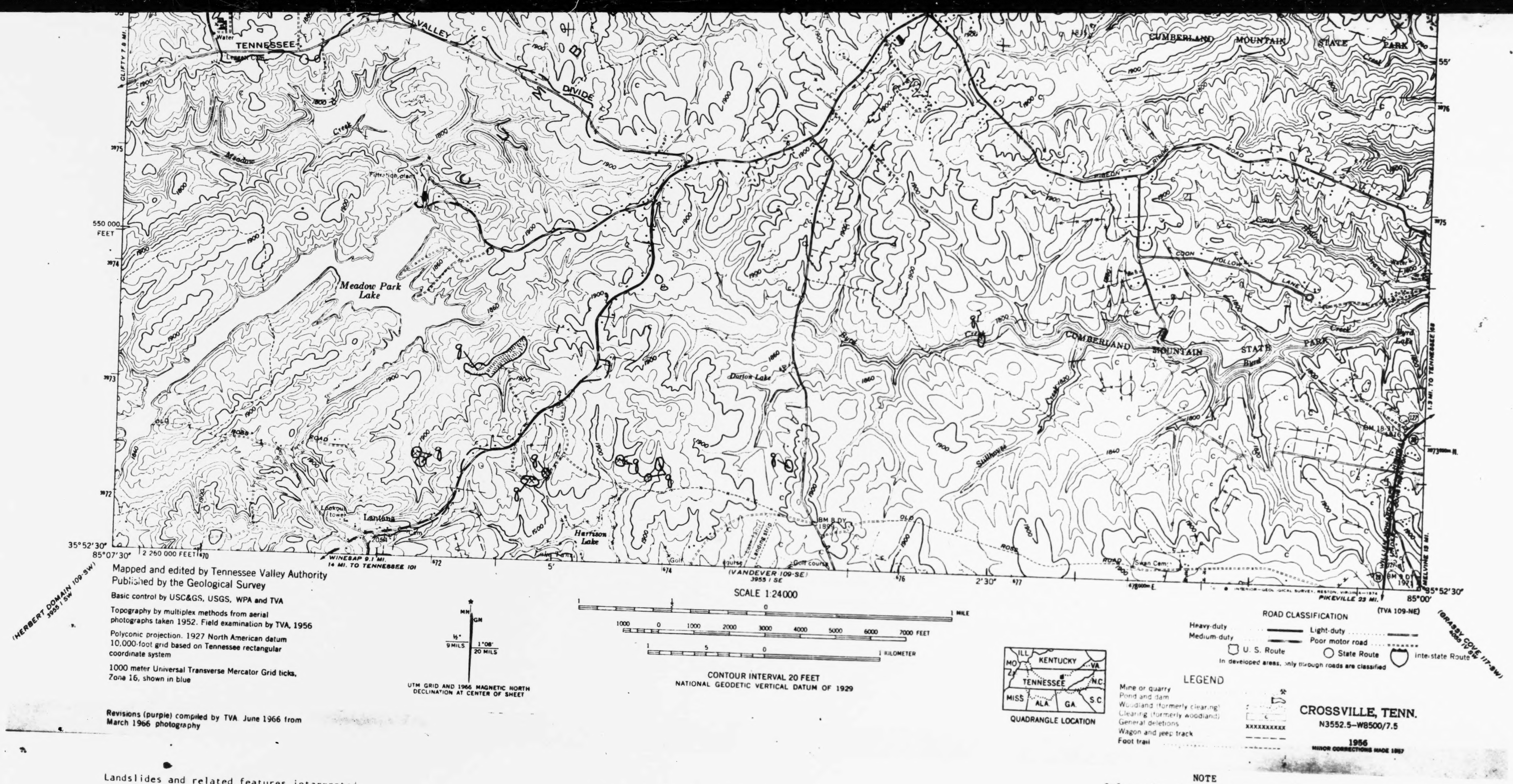
CROSSVILLE QUADRANGLE
TENNESSEE-CUMBERLAND CO.
7.5 MINUTE SERIES (TOPOGRAPHIC) 109-NE

Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

SCALE 1:24000

ROAD CLASSIFICATION

(TVA 109-NE)



Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE CROSSVILLE, TENN. QUADRNAGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-8)

NOTE

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COLLUVIAL SLOPES WITH LANDSLIDES
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Coal refuse banks

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rbs	sludge

Quarries

q	quarry site

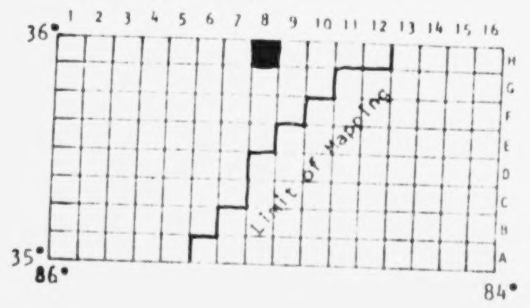
Gravel pits

g	site of gravel pit

Slides in man-made features

af	earth flow in fill
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

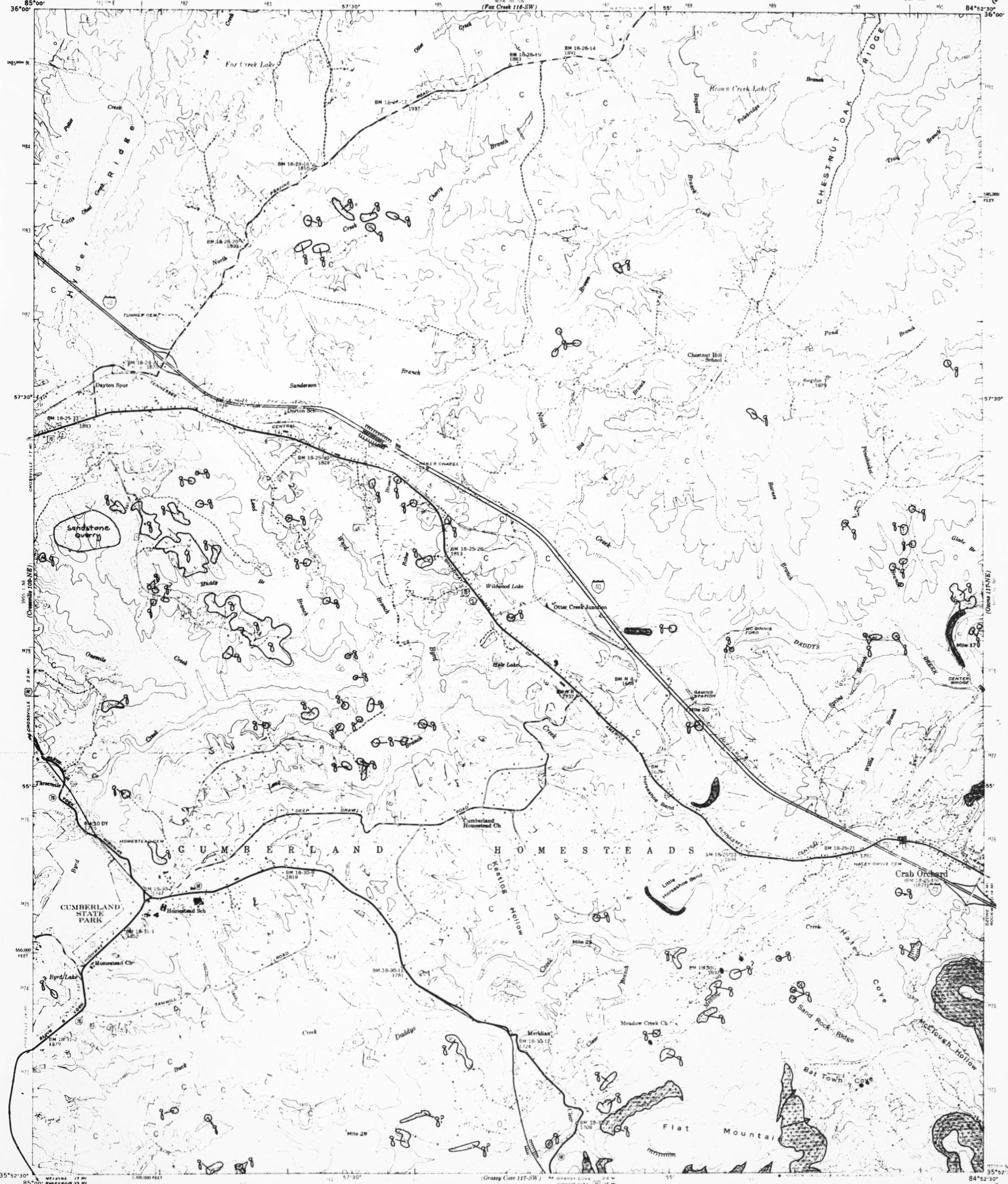
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

TENNESSEE
(CUMBERLAND COUNTY)
DORTON QUADRANGLE
117-NW



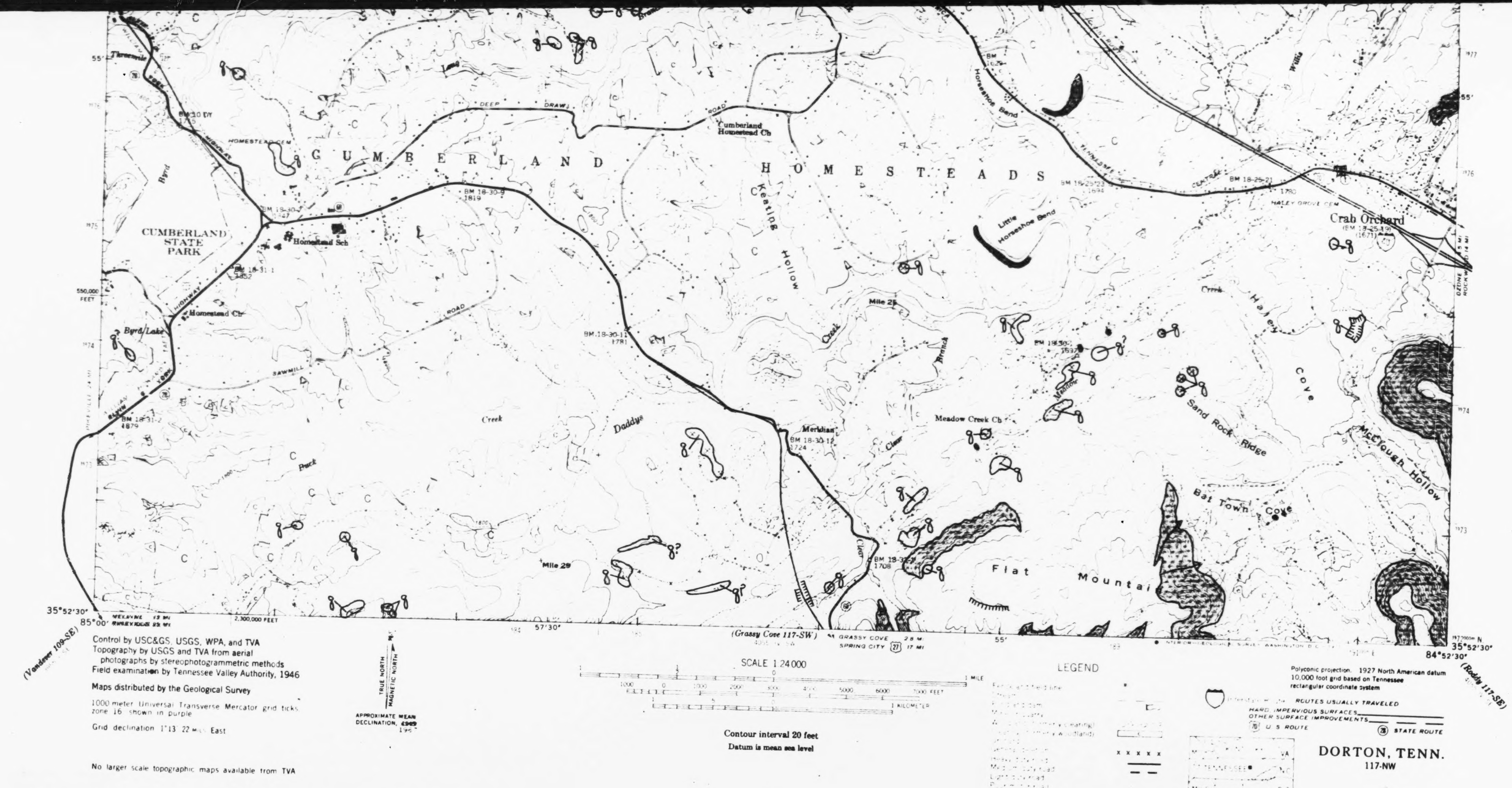
Control by USC&GS, USGS, WPA, and TVA
Topography by USGS and TVA from aerial photographs by stereophotogrammetric methods
Field examination by Tennessee Valley Authority 1946

SCALE 1:24000

LEGEND

Polyconic projection. 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system

ROUTES USUALLY TRAVELED



Landslides and related features interpreted from aerial photographs:
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
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LANDSLIDES AND RELATED FEATURES

OF THE DORTON, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-9)

NOTE

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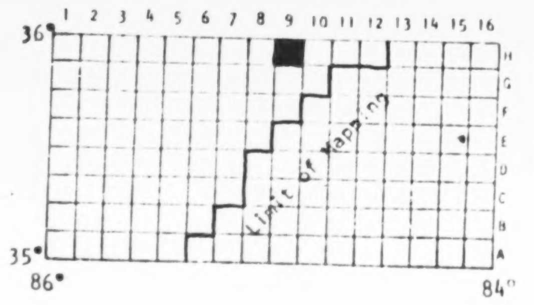
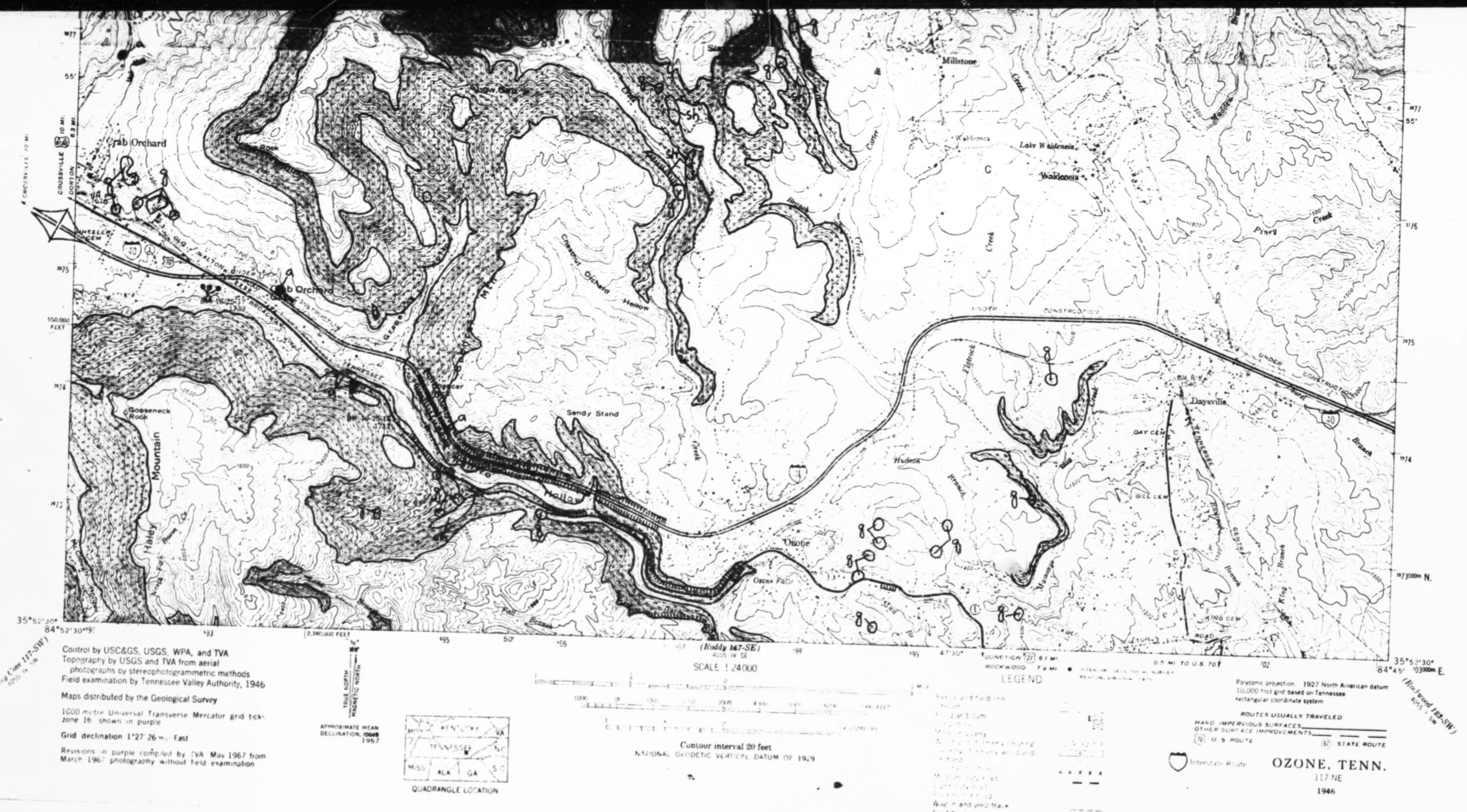
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH

TENNESSEE
(CUMBERLAND COUNTY)
OZONE QUADRANGLE
117-NE



Landslides related features interpreted from aerial photographs:
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Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

LANDSLIDES AND RELATED FEATURES

OF THE OZONE, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-10)

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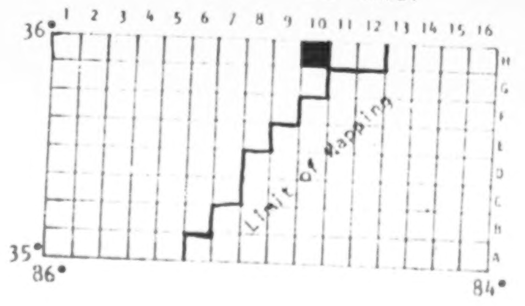
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPS AND SURVEYS BRANCH
CARDIFF QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 123-NW
CATOOSA WILDLIFE MANAGEMENT AREA
MT. ROOSEVELT STATE FOREST
ROANE CO.
ROCKWOOD
(ROCKWOOD 123-SW)
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey
Control by USGS, NOS/NOAA, WPA, and TVA
Revised by TVA in 1968 by photogrammetric method using aerial photographs taken 1967 and by reference to TVA USGS quadrangle dated 1952. Map field checked by TVA, 1968
SCALE 1:24 000
CONTOUR INTERVAL 20 FEET
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Medium duty
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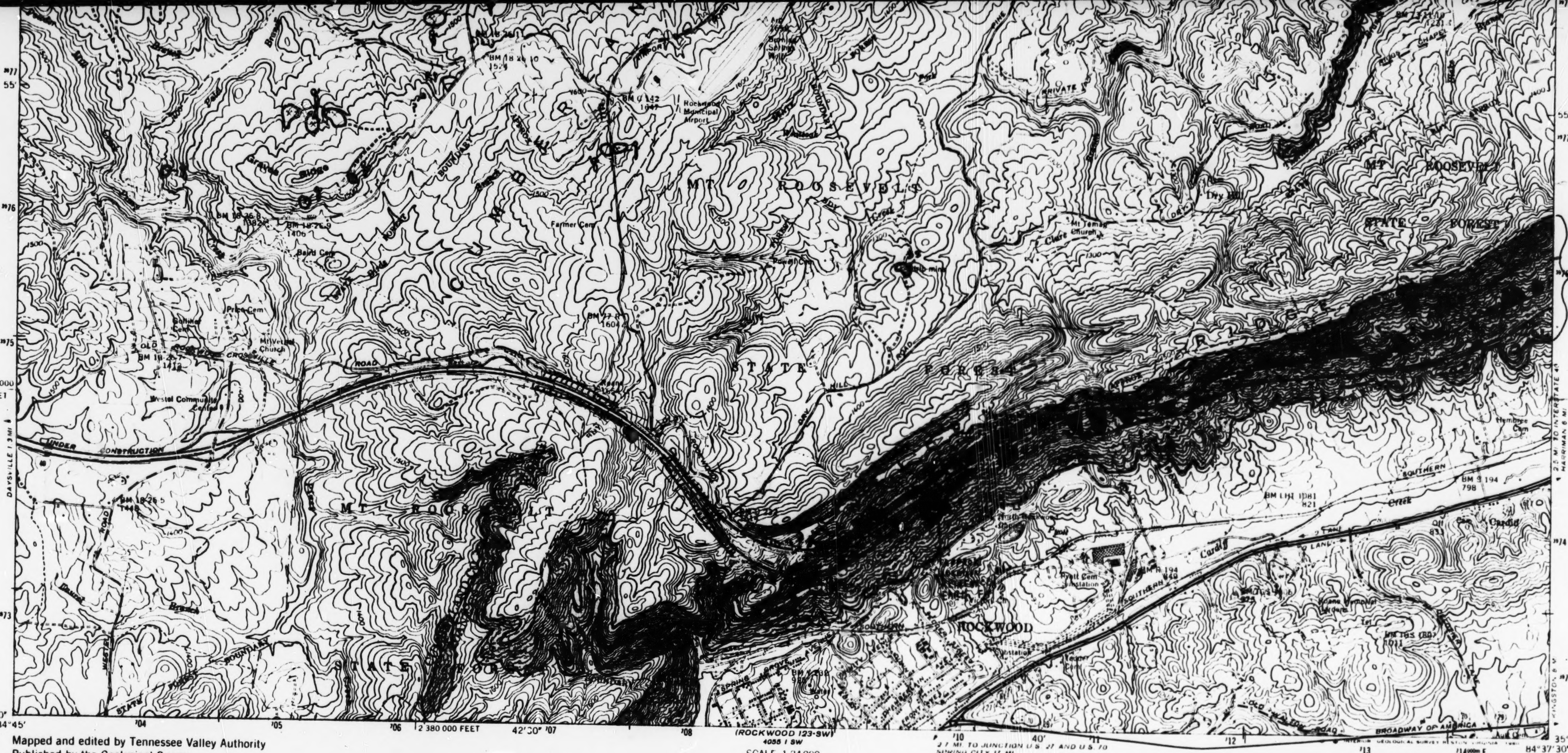
Foot trail
Interstate Route
U. S. Route
State Route
KENTUCKY

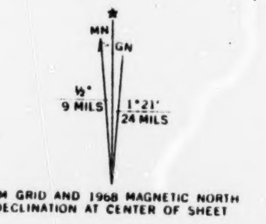


Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by USGS, NOS/NOAA, WPA, and TVA

Revised by TVA in 1968 by photogrammetric method using aerial photographs taken 1967 and by reference to TVA-USGS quadrangle dated 1952. Map field checked by TVA, 1968

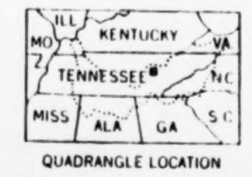
Polyconic projection. 10,000-foot grid ticks based on Tennessee rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 6 meters west as shown by dashed corner ticks



UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

ROAD CLASSIFICATION

Heavy duty — Poor motor road
Medium duty — Wagon and jeep track
Light duty — Foot trail
Interstate Route — U.S. Route — State Route
In developed areas, only through roads are classified

CARDIFF, TENN.
N3552.5—W8437.5/7.5

1968

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards.

Additional information from:

Tiedemann, H.A., Jewell, J.W. and Swingle, G.D., 1965
Geologic map of the Cardiff quadrangle, Tennessee.
Tennessee Department of Conservation,
Division of Geology, scale 1:24,000.

LANDSLIDES AND RELATED FEATURES

OF THE CARDIFF, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-11)

NOTE

Information shown is intended as a general guide to ground contions as of the date of field check. Additional landslides and rockfalls should be anticipated in all map units. The map unit depicts the dominant condition in the area delineated and variations in slope stability may occur at any point in the unit. This map is suitable for general planning purposes and as a supplement to more detailed studies for site selection. The map cannot be used as a substitute for detailed geologic and engineering investigations to establish design and construction criteria of specific sites. Some symbols may not appear on this map because the description is applicable to a series of maps.

ACTIVE OR RECENTLY ACTIVE LANDSLIDE
Complex landslide composed of earthflow, debris slide, earth and rock slump. Identified from historical records, and from scars, debris and other field evidence. Ground extremely unstable; sliding accelerated by excavation, loading and changes in drainage conditions. May include areas with several active slides too small to be shown separately. Questioned where doubtful.

OLD LANDSLIDE
Area of extensive hummocky ground caused by earthflow and earth and rock slump. Lacks clear evidence of active sliding. Relatively stable in natural, undisturbed state, generally not affected by small structures properly sited in areas away from the edge of the toe; can be reactivated by extensive, rapid excavation, loading, and changes in ground water and surface water conditions. Area of old landslide probably includes recent ones not identified from field evidence or otherwise documented. Upslope boundary of landslide generally defined by modified scarp, but downslope (toe) may be gradational and not well defined. Questioned where doubtful.

COMBINATION LANDSLIDE
Area of recent and old slides in which individual slides are not identified.

COLLUVIAL SLOPE
Valley wall along major streams with slope as steep as 40 (85%); stony, clayey silt soil up to 50 ft. (15 m) thick; commonly buttressed by a terrace or bench at the toe of the slope; very susceptible to sliding by cutting of toe area, removal of terrace or bench, and overloading; slide commonly activated without apparent cause.

Additional information from:

Royster, David L.
Construction of a Reinforced Earth Fill Along Interstate-40 in Tennessee.
Tennessee Department of Transportation
25th Annual Highway Geology Symposium-May 24, 1974,
Raleigh, North Carolina.

COLLUVIAL SLOPES WITH LANDSLIDES
Landslides too small or obscure to map individually.

AREAS SUSCEPTIBLE TO DEBRIS FLOWS AND DEBRIS AVALANCHES
Primarily shallow, narrow ravines and chutes with accumulation of stony colluvium generally 10 ft. (3 m) or less in thickness; susceptible to rapid movement during intense rainfall. Most ravines and chutes designated show evidence of former debris flows and avalanches.

AREAS SUSCEPTIBLE TO ROCKFALL
Steep, locally vertical, natural and man-made slopes and cliffs, 15 ft. (4.5 m) or more high; formed dominantly of sandstone, limestone, sandy shale, mudstone and claystone. Interbedded mudstone, claystone and shale weather rapidly leaving sandstone and limestone rock faces unsupported.

SOIL AND ROCK SUSCEPTIBLE TO LANDSLIDING
Soil and rock similar to that involved in landslides elsewhere in map area; primarily areas underlain by claystone, mudstone and shale associated with other rock types. Rock weathers rapidly on exposure forming clayey soil highly susceptible to sliding. Includes coves (U-shaped, shallow valleys) containing thick layers of clayey soil that are very susceptible to sliding where excavation breaks continuity of slope and where overloaded by artificial fill.

AREAS LEAST PRONE TO LANDSLIDES
Map areas in which no patterns or symbols are shown; primarily valley floors, ridge tops and broad benches; modification by excavation and fill may lead to local landslides.

The first six digits of the open file number designate the specific 1:250,000 scale map sheet of which this quadrangle is a part. The last two digits designate the position of the quadrangle in a subdivision of the 1:250,000 scale map based on rows and tiers shown in the diagram to the right. The location of this quadrangle is shown by the black square.

MAN-MADE FEATURES
Strip mines (combination of letter symbols indicates complex formed or more than one type of strip mine)
- sh — bench with high wall
- sf — furrowed with high wall
- sd — multiple furrows and multiple benches
- ss — hilltop removed
- srg — reclaimed by grading
- sru — reclaimed by secondary use
- sh/r — regraded in part, high wall remains

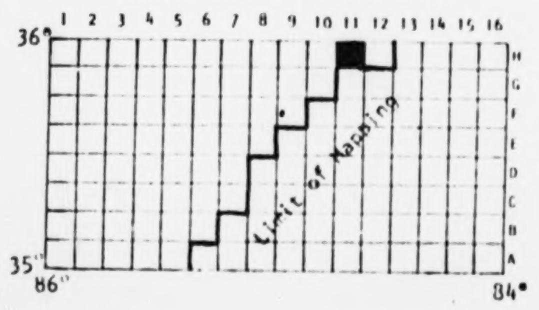
Coal refuse banks
- r — identified on aerial photographs; not classified in field check
- rb — not burnt nor on fire
- rbb — burnt
- rbd — burning
- rbs — sludge

Quarries
- q — quarry site

Gravel pits
- g — site of gravel pit

Slides in man-made features
- af — earth flow in fill
- a/s — earth flow in strip castings
- a/r — earth flow in coal refuse

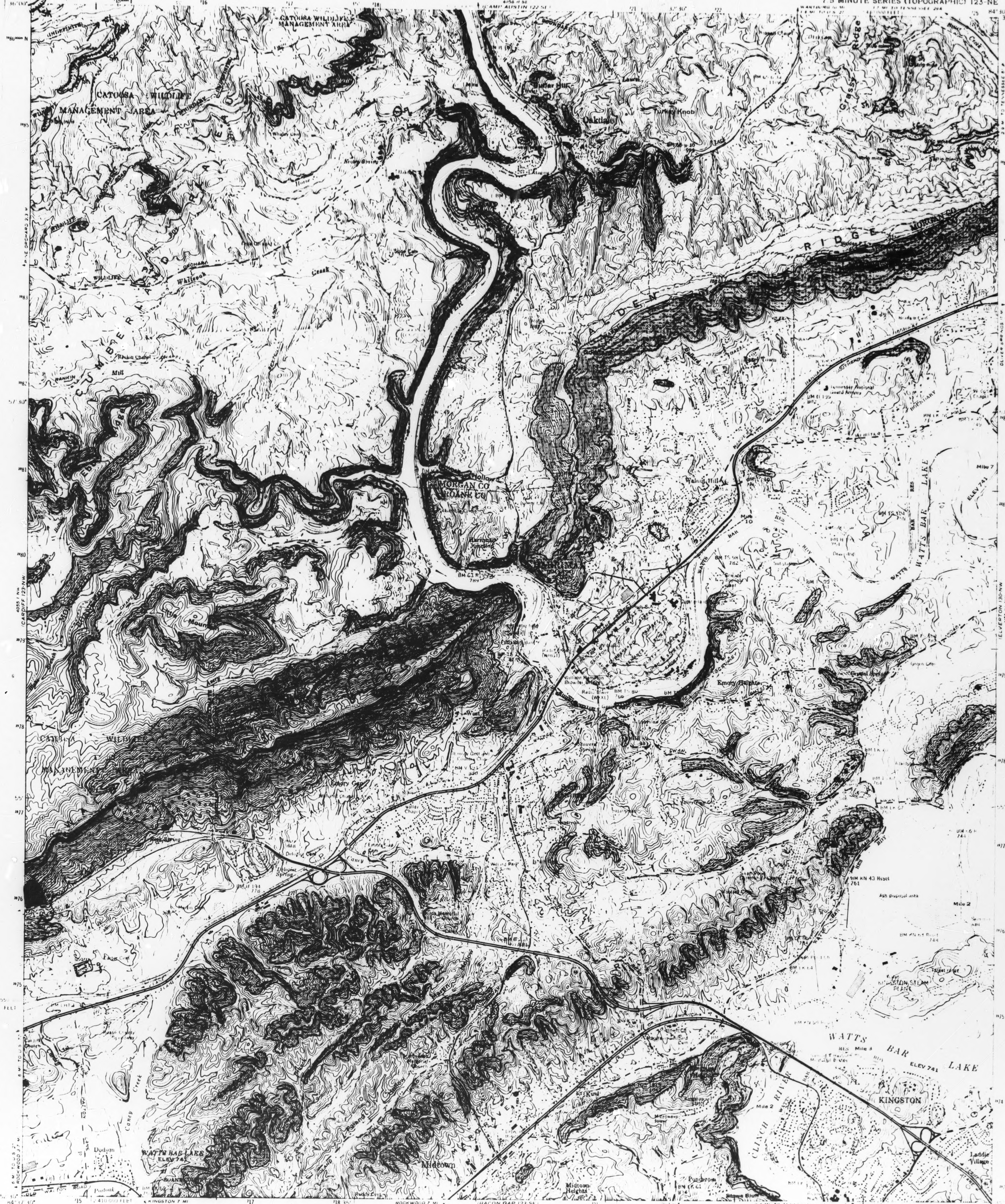
CHATTANOOGA 1° X 2° SHEET



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
TENNESSEE VALLEY AUTHORITY
MAPPING SERVICES BRANCH

HARRIMAN QUADRANGLE
TENNESSEE
7.5 MINUTE SERIES (TOPOGRAPHIC) 123-NE



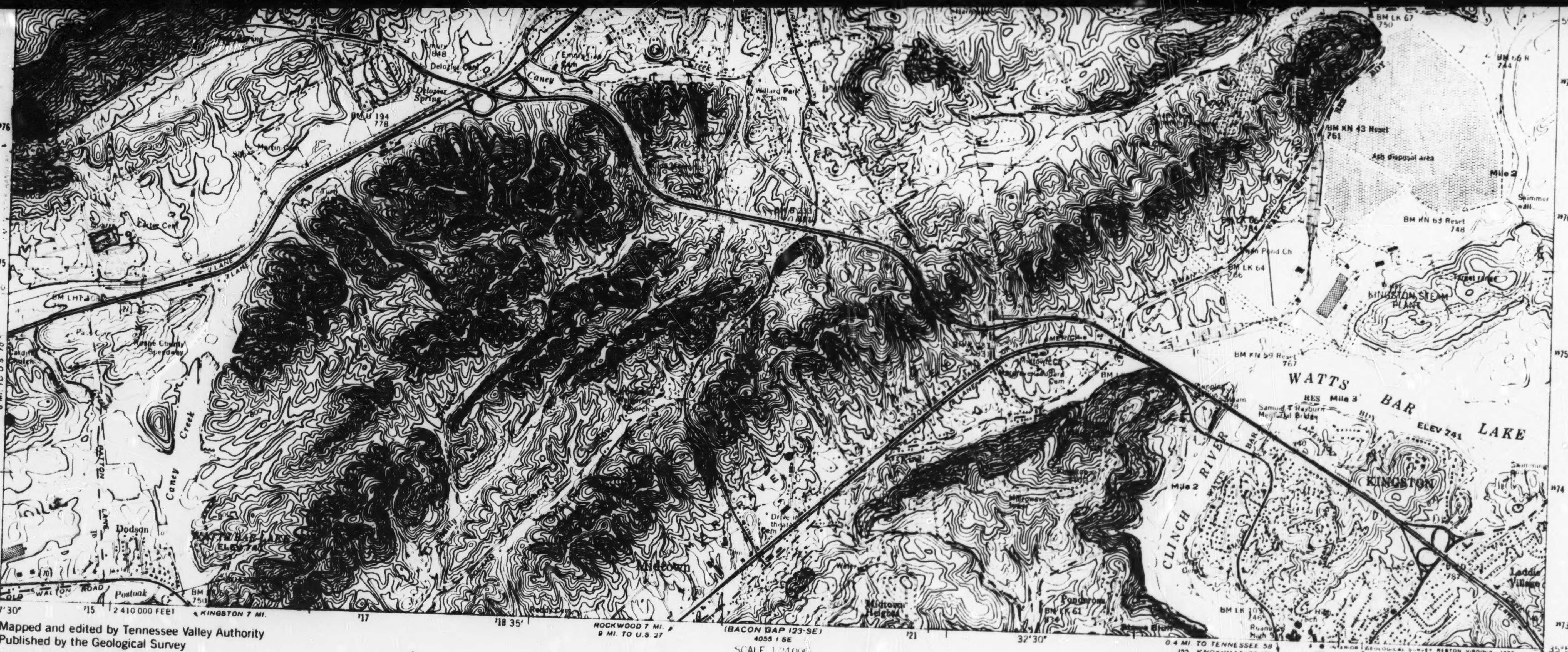
Mapped and edited by Tennessee Valley Authority
Published by the Geological Survey

Control by NOS/NOAA, USGS, WPA and TVA

Revised by TVA in 1968 by photogrammetric methods using

ROAD CLASSIFICATION

Primary highway, all weather, hard surface — Light-duty road, all weather, improved surface



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Revised by TVA in 1968 by photogrammetric methods using aerial photographs taken 1967 and by reference to TVA-USGS quadrangle dated 1953. Map field checked by TVA, 1968

Polyconic projection
10,000 foot grid based on Tennessee rectangular coordinate system
1000 meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum
To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 6 meters west as shown by dashed corner ticks

UTM GRID AND 1980 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

There may be private inholdings within the boundaries of the National or State reservations shown on this map

SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DASHED LINES REPRESENT HALF-INTERVAL CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

ROAD CLASSIFICATION
Primary highway, all weather, hard surface — Light-duty road, all weather, improved surface
Secondary highway, all weather, hard surface — Unimproved road, fair or dry weather
Interstate Route — U.S. Route — State Route

HARRIMAN, TENN.
N3552.5—W8430/7.5
1968

Landslides and related features interpreted from aerial photographs:
1:20,000 (Black and White) 1970
1:79,000 (Black and White) 1976

Photointerpretation and field check 1981
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LANDSLIDES AND RELATED FEATURES

OF THE HARRIMAN, TENN. QUADRANGLE

by
Roger E. Thomas
1981

U.S. Geological Survey
OPEN FILE MAP 81-1318 (H-12)

NOTE

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rbb	burnt
rbd	burning
rbs	sludge

Quarries

q	quarry site

Gravel pits

g	site of [illegible]

Slides in man-made features

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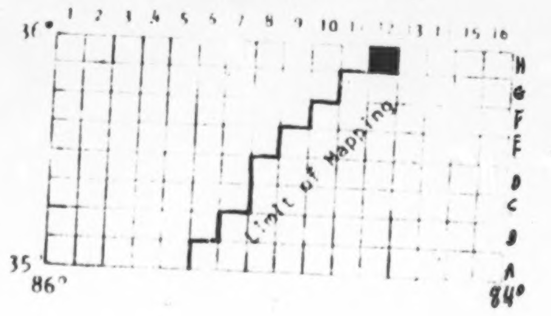
a/s	earth flow in strip castings
a/r	earth flow in coal refuse

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